

---

---

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

*Micrographie — Microfilmage des documents sur microfilms gélatino-  
argentiques de 16 mm et 35 mm — Modes opératoires*

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 6199:2005

[https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-  
ed1ab23e1c2b/iso-6199-2005](https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005)



Reference number  
ISO 6199:2005(E)

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 6199:2005

<https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword.....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>2</b>
<b>4 Preparation of documents .....</b>	<b>2</b>
<b>5 Conditions of microfilming .....</b>	<b>2</b>
5.1 Raw-stock microfilm.....	2
5.2 Formats and orientation.....	2
5.3 Roll film coding .....	5
5.4 Frame numbering.....	5
5.5 Placement .....	5
5.6 Inter-image gap .....	5
5.7 Edge marker .....	5
5.8 Reduction ratio.....	5
5.9 Document dimensions .....	6
<b>6 Microfilming procedures .....</b>	<b>9</b>
6.1 Documents recorded on more than one roll of film.....	9
6.2 Leader and trailer.....	9
<b>7 Filming sequence.....</b>	<b>9</b>
7.1 Targets .....	9
7.2 Archival test area.....	10
7.3 Retakes .....	10
7.4 Targets .....	10
<b>8 Scanning microfilm.....</b>	<b>12</b>
8.1 Cameras used for producing scanning microfilm.....	12
8.2 Frame numbering.....	12
8.3 Placement .....	12
8.4 Edge detection .....	12
8.5 Targets .....	12
8.6 Image density .....	13
8.7 Skew .....	13
8.8 Resolution .....	13
<b>9 Splices .....</b>	<b>13</b>
<b>10 Document placement on the camera baseboard.....</b>	<b>13</b>
<b>11 Winding.....</b>	<b>13</b>
<b>12 Quality control.....</b>	<b>14</b>
<b>13 Legal Admissibility .....</b>	<b>14</b>
<b>Annex A (informative) Preparation of documents .....</b>	<b>15</b>
<b>Annex B (informative) Resolution.....</b>	<b>17</b>
<b>Bibliography .....</b>	<b>19</b>

## 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6199 was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Application issues*.

This second edition cancels and replaces the first edition (ISO 6199:1991), which has been technically revised.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**  
ISO 6199:2005  
<https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005>

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

## 1 Scope

This International Standard specifies procedures that enable a camera operator to produce microfilm of appropriate quality of presentation and legibility, capable of yielding scanned images of acceptable quality.

This International Standard specifies methods for microfilming documents on 16 mm and 35 mm silver-gelatin microfilm, including orientation of images on microfilm, use of non-image areas and information required to facilitate identification of the microfilm.

This International Standard applies to microfilming using rotary and planetary cameras.

This International Standard does not apply to the filming of technical drawings, maps and plans and newspapers, for which specific International Standards exist [1-3].

iTeh STANDARD PREVIEW

## 2 Normative references (standards.iteh.ai)

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3334:—<sup>1)</sup>, *Micrographics — ISO resolution test chart No. 2 — Description and use*

ISO 6148:2001, *Photography — Micrographic films, spools and cores — Dimensions*

ISO 6196 (parts 1 to 8 and 10), *Micrographics — Vocabulary*

ISO 6200:1999, *Micrographics — First generation silver-gelatin microforms of source documents — Density specifications and method of measurement*

ISO 9878:1990, *Micrographics — Graphical symbols for use in microfilming*

ISO/TR 10200:1990, *Legal admissibility of microforms*

ISO 10550:1994, *Micrographics — Planetary camera systems — Test target for checking performance*

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

ISO 11962:2002, *Micrographics — Image mark (blip) used with 16 mm and 35 mm roll microfilm*

ISO 18906:2000, *Imaging materials — Photographic films — Specifications for safety film*

1) To be published. (Revision of ISO 3334:1989)

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6196 and the following apply.

#### 3.1

##### **inter-image gap**

##### **inter-frame gap**

distance, measured along the long edge of a roll microfilm, between the trailing edge of one microimage and the leading edge of the following microimage

#### 3.2

##### **scanning microfilm**

microfilm intended to be used for scanner input

### 4 Preparation of documents

Documents to be microfilmed shall be examined carefully, defects remedied where appropriate, foreign bodies (e.g. fasteners) removed and pages arranged in the required order.

Documents to be microfilmed shall be examined to ensure that their dimensions are within those acceptable to the microfilming system.

Appropriate targets shall be added to each batch of documents during the preparation stage.

Annex A gives more details on the preparation of documents prior to microfilming.

### 5 Conditions of microfilming

#### 5.1 Raw-stock microfilm

Raw-stock microfilm shall comply with the requirements of ISO 6148 and ISO 18906.

#### 5.2 Formats and orientation

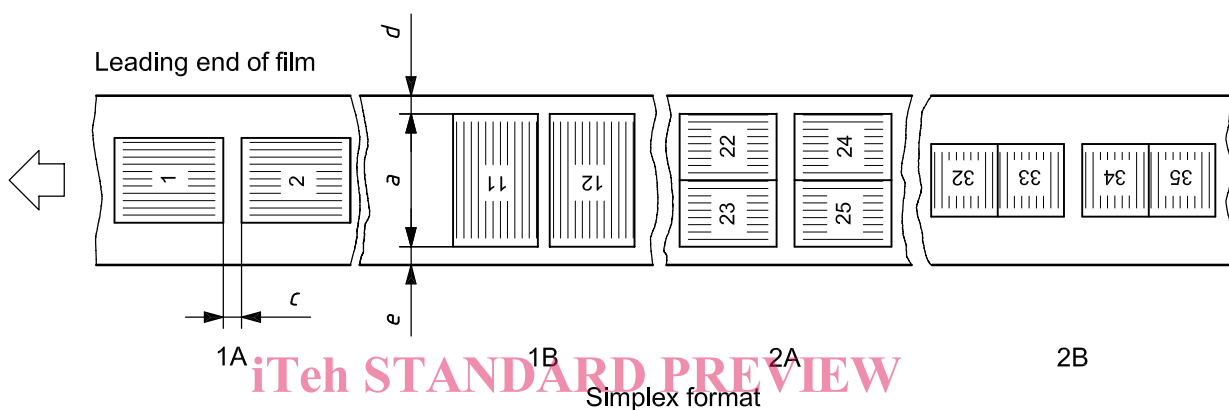
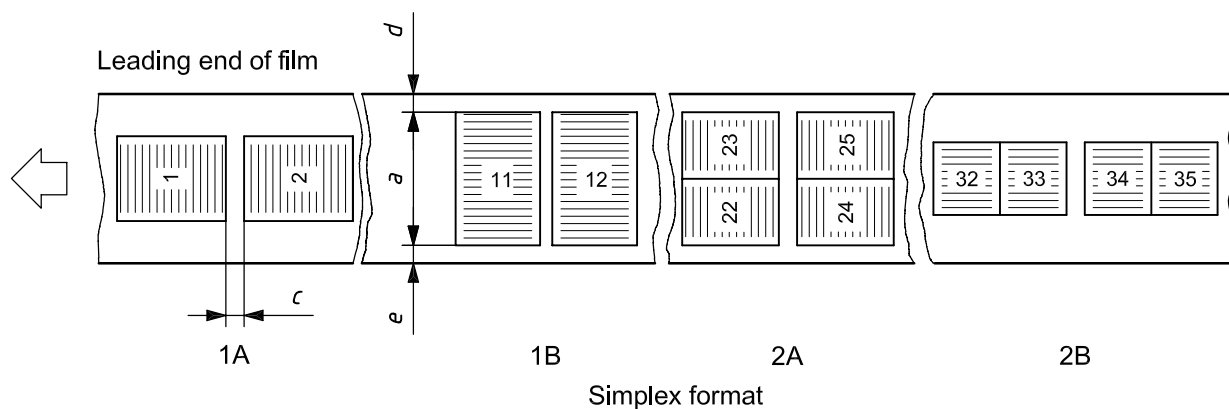
##### 5.2.1 Formats

The formats commonly used in roll microfilm are shown in Figure 1.

The dimensions for the placement of the microimages on the film are listed in Table 1.

**Table 1 — Dimensions of frames for unperforated film without document marks**  
(see Figure 1)

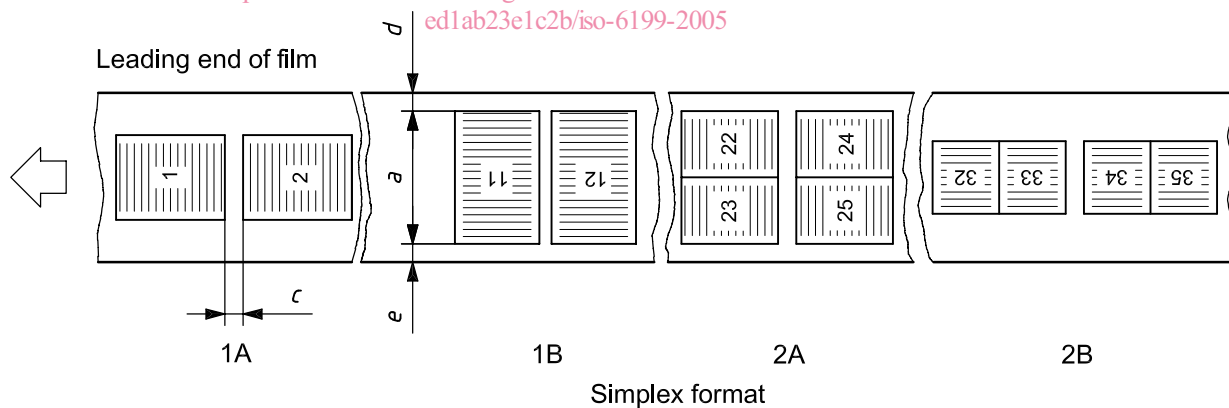
Values in millimetres			
Dimension	Measure	16 mm film	35 mm film
$a$ max.	image width	14,92	33,00 <sup>a</sup>
$c$ min.	inter-image gap	1,00	2,00
$d$ min.	side margin	0,50	0,97
$e$ min.	side margin	0,50	0,97
$f$ min. <sup>b</sup>	centre margin	0,50	0,97
NOTE Film width (e.g. $a + 2d$ ) shall be in accordance with ISO 6148. Image areas are smaller.			
<sup>a</sup> For some applications, this figure may change in accordance with the relevant International Standard.			
<sup>b</sup> For all formats except simplex.			



Alternate orientation for documents with right to left scripts

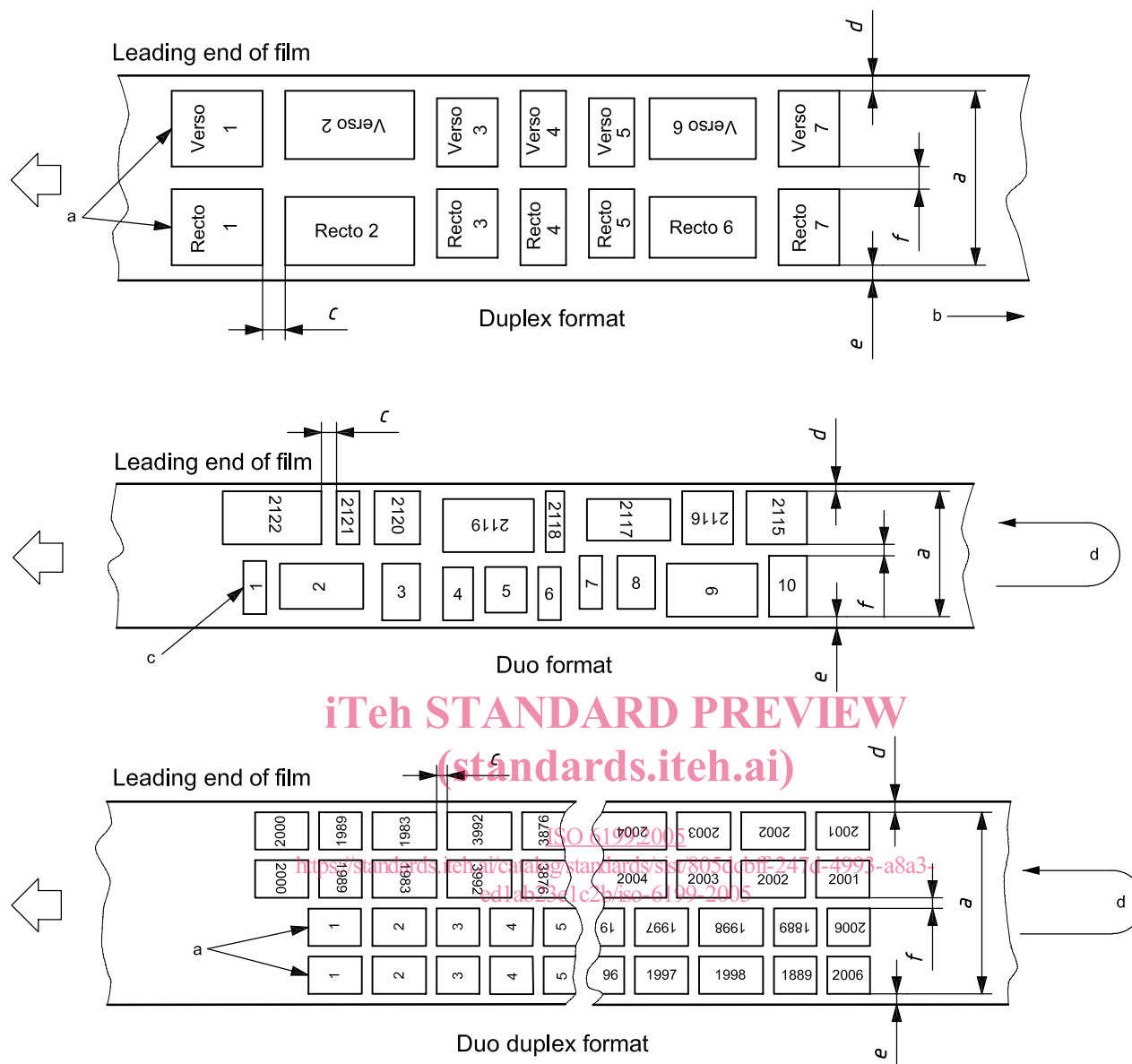
ISO 6199:2005

<https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005>



Preferred orientation for documents with horizontal and right to left scripts

Figure 1 — Roll microfilm formats



NOTE 1 On the duplex format, the image orientation of one row (front) is controlled by the orientation of the text on the original page, and the image orientation of the opposite row (back) is controlled by the image orientation of the above mentioned row.

NOTE 2 The duo duplex format is used primarily in banking applications.

- a Front and back of first document
- b Ascending order
- c First (or last) document
- d Ascending (or descending) order

Figure 1 (continued)



### 5.2.2 Orientation

Where microimages are recorded in simplex format, horizontal mode (comic), orientations 1B and 2B of Figure 1 shall be used. Where simplex format, vertical mode (cine) is used, the microimages should be oriented as shown in 1A and 2A of Figure 1.

The orientation of microimages for filming in duplex, duo and combination duo-duplex formats is also shown in Figure 1.

### 5.3 Roll film coding

Microimages may be coded so that individual microimages or series of microimages can be easily located. Examples of coding systems are specified in ISO 11962.

### 5.4 Frame numbering

Where frame numbers are used, they shall not appear within the microimage frame area. They may appear towards either edge of the microfilm, or within the inter-image gap, offset towards the top or bottom of the gap. Frame numbers shall not exceed 2 mm in height, measured on the microfilm.

The positioning of the frame numbers shall remain consistent within a roll of microfilm.

See also 8.2.

### 5.5 Placement

Microimages shall be centrally placed across the width of the frame area, with at least 30 % of each microimage in each half of the useable width of the microfilm.

See also 8.3.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
ISO 6199:2005  
<https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005>

### 5.6 Inter-image gap

The inter-image gap shall be as specified in Table 1.

NOTE When using scanning microfilm, this inter-image gap is crucial to the detection of the image edge (see 8.4).

### 5.7 Edge marker

This subclause applies to microfilming using planetary cameras only.

Where the leading edge of a document to be microfilmed is so irregular that there is no segment of this edge that can be said to define the position of the edge unambiguously, a matt white bar of minimum width 3 mm shall be placed on the camera baseboard, parallel to the leading edge of the microimage area, and just touching the leading edge of the document. The length of the bar shall be sufficient to extend across the whole width of the microimage area.

### 5.8 Reduction ratio

The reduction ratio and orientation selected should allow the smallest alphanumeric characters to be legible in a distribution copy projected on a reader screen and on a hard copy made from a distribution copy.

The reduction ratio to be used shall be determined by the size of the characters, the quality of the originals, the quality of the camera-film system, and the size of the documents to be microfilmed. Where possible, horizontal mode should be used.

5.9 Document dimensions

5.9.1 General

The maximum height or width of a microimage that can be recorded on the usable width of the film is indicated in Table 1 and Figure 1 for uncoded film and Figure 2 for coded film.

NOTE The maximum height or width of the document depends on the film format, the reduction ratio and the type of camera (rotary or planetary) to be used.

5.9.2 Simplex format using rotary cameras

The side of a microimage which is parallel to the length of the film may be of any length.

Table 2 lists two of the most commonly used reduction ratios for the simplex format of uncoded film from 16 mm rotary cameras. If a microimage is close to the indicated recordable size, a higher reduction ratio shall be used to reduce the possibility of information loss caused by skewing of the document while it is being filmed.

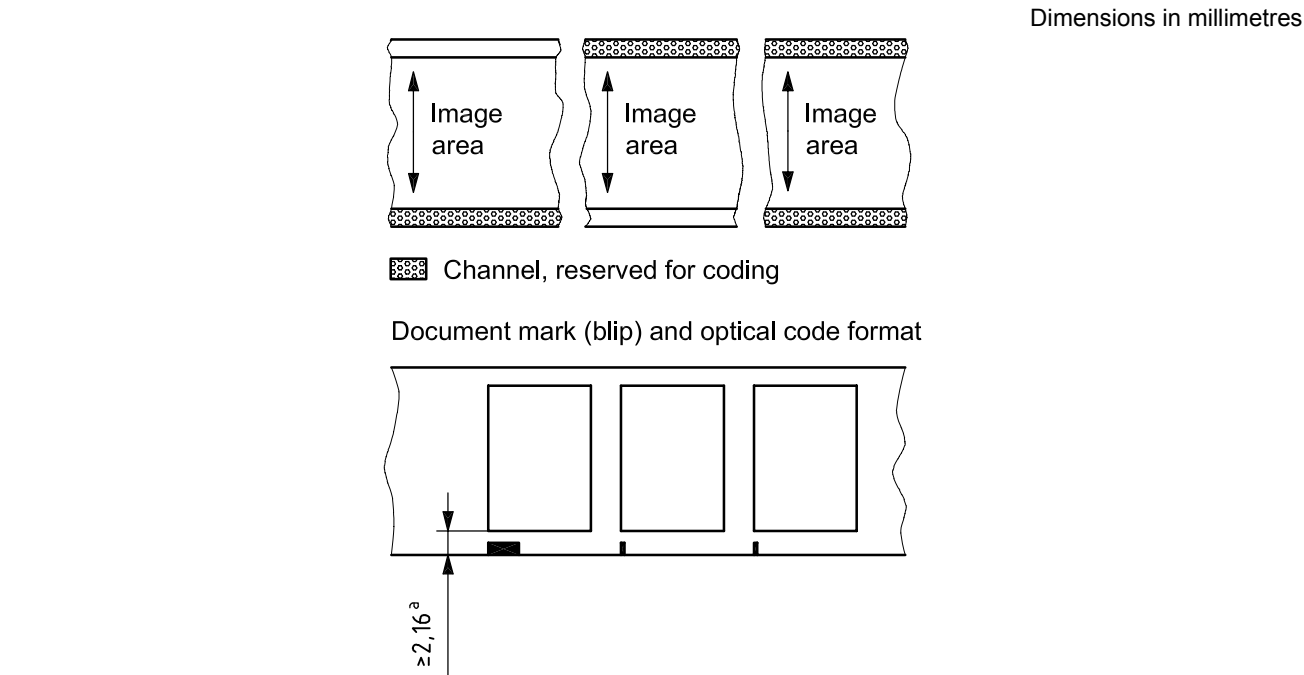
NOTE The maximum dimensions of a document that can be filmed are determined by the width of the throat of the document feeder.

Table 2 — 16 mm rotary microfilm camera —  
Simplex format for uncoded film

Values in millimetres

Nominal reduction ratio	Maximum dimension of document side perpendicular to the long axis of the film
1:20	ISO 6199:2005 2985
1:24	ISO 6199:2005 3571

<https://standards.iteh.ai/catalog/standards/sist/805dcbff-247d-4993-a8a3-ed1ab23e1c2b/iso-6199-2005>



<sup>a</sup> Channel reserved for document mark.

Figure 2 — Channels provided for document marks (blips) and optical code format

### 5.9.3 Simplex format using planetary cameras

Simplex format is also used with planetary cameras that can have variable (or a set of fixed) reductions and a variable frame pitch. Table 3 lists the maximum dimensions of documents usable with various reduction ratios. For microfilming using fixed frame-pitch cameras, see Table 4 and Figure 3.

NOTE To allow for positioning errors, the actual dimensions of the documents should be less than those indicated.

For 35 mm film intended for insertion in A6 jackets as strips of three frames, the maximum frame pitch shall be 47,5 mm. Appropriate reduction ratio changes may be required to accommodate the shorter frame advance.

**Table 3 — Planetary roll microfilm camera with adjustable frame pitch —  
Maximum dimensions of documents**

Values in millimetres

Reduction ratio <sup>a</sup>	Maximum dimensions of documents			
	16 mm microfilm		35 mm microfilm	
	Length	Width	Length	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

<sup>a</sup> Caution, actual reduction ratios used in practice may be different to those indicated in this table. Relevant measurements can be calculated by applying the reduction ratio to the image frame dimensions.