



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS B 7186 : 1997

**Readers and reader-printers for
transparent microforms**

ICS 37.080

Descriptors : microform readers, photocopying

Reference number : JIS B 7186 : 1997 (E)

B 7186:1997

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently, JIS B 7186:1988 is replaced with JIS B 7186:1997.

Date of Establishment: 1955-04-14

Date of Revision: 1997-10-20

Date of Public Notice in Official Gazette: 1997-10-20

Investigated by: Japanese Industrial Standards Committee
Divisional Council on Precision Machinery

JIS B 7186:1997, First English edition published in 1998-08

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 1998

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 the publisher.

Printed in Japan

Readers and reader-printers for transparent microforms

Introduction This Japanese Industrial Standard was made on the basis of ISO 6198, *Micrographics—Readers for transparent microforms—Performance characteristics*, ISO 7565, *Micrographics—Readers for transparent microforms—Measurement of characteristics* and ISO 10197, *Micrographics—Reader-printers for transparent microforms—Characteristics* published in 1993 as the first editions, as for the parts corresponding to each other without changing the technical contents. The maximum width of 35 mm was specified in the International Standard but it is not specified in this Standard.

1 Scope This Japanese Industrial Standard specifies the readers for transparent microforms (hereafter referred to as "reader") and the reader-printers for transparent microforms (hereafter referred to as "reader-printer") with magnification less than or equal to 50:1 designed for use with black-and-white film.

Remarks 1 This Standard does not apply to simple readers for portable use such as pocket readers.

2 The following standards are the International Standards corresponding to this Standard:

ISO 6198 : 1993 *Micrographics — Readers for transparent microforms—Performance characteristics*

ISO 7565 : 1993 *Micrographics — Readers for transparent microforms—Measurement of characteristics*

ISO 10197 : 1993 *Micrographics — Reader-printers for transparent microforms—Characteristics*

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards indicated below shall be applied.

JIS B 0139 *Copying machines—Graphical symbols*

JIS C 1302 *Insulation resistance testers*

JIS C 1303 *High insulation resistance meters*

JIS C 1502 *Sound level meters*

JIS P 0138 *Trimmed sizes of paper*

JIS Z 6000 *Micrographics-Vocabulary*

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

ISO 216 *Writing paper and certain classes of printed matter—Trimmed sizes*

— *A and B series*

- ISO 1116 *Microcopying— 16 mm and 35 mm microfilms, spools and reels*
- ISO 3272-1 *Microfilming of technical drawings and other drawing office documents — Part 1 : Operating procedure*
- ISO/DIS 3272-3 *Micrographics— Microfilming of technical drawings and OTH other office documents— Part 3 : Aperture card for 35 mm microfilm*
- ISO 6199 *Micrographics— Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm— Operating procedures*
- ISO/DIS 7761 *Micrographics— Single core cartridge for 16 mm processed microfilm — Dimensions and operational constraints— Part 1 : Open type cartridge*
- ISO/DIS 7762 *Micrographics— Cassette for 16 mm processed microfilm— Dimensions and operational constraints*
- ISO 9923 *Micrographics — Transparent A6 size microfiche — Image arrangements*
- IEC 417H *Graphical symbols for use on equipment. Index survey and compilation of the single sheets.*
Eighth supplement
- IEC 950 *Safety of information technology equipment including electrical business equipment*

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

4 Performance of reader

4.1 Magnification The tolerance on magnification shall be ± 5 % of the nominal value ⁽¹⁾ when tested in accordance with the specification in **7.2**.

Note ⁽¹⁾ The value indicated by the manufacturer as the designed value.

Remarks The tolerance on magnification is recommended to be 0 or -5 % of the nominal value in order to prevent the image on screen from the missing of its edge part.

4.2 Resolution or readability on screen The resolution or readability on screen shall be equal to or more than the values given in Table 1.1 or Table 1.2 when tested in accordance with **7.3**. In the case of the magnification not given in Table 1.1 or Table 1.2, the magnification equal to or more than those nearest the magnification given in Table 1.1 or Table 1.2 shall be taken. The image of microform to be used in the test shall have the resolution or readability higher at least four stages than the values specified in Table 1.1 or Table 1.2.

**Table 1.1 Resolution on screen (at the time of using
ISO No. 2 resolution test chart)**

unit ; lines/mm

Magnification	Resolution	Fineness of chart on screen (informative)	Magnification	Resolution	Fineness of chart on screen (informative)
10 : 1	6.3	63	35 : 1	3.2	112
15 : 1	4.5	67.5	40 : 1	2.8	112
20 : 1	4.0	80	45 : 1	2.5	112.5
25 : 1	3.6	90	50 : 1	2.5	125
30 : 1	3.2	96			

**Table 1.2 Readability on screen (at the time of using
ISO No.1 microtest chart)**

Magnification	Readability	Magnification	Readability
10 : 1	125	35 : 1	71
15 : 1	112	40 : 1	63
20 : 1	100	45 : 1	56
25 : 1	90	50 : 1	50
30 : 1	80		

Remarks The values of this Table show the case of the film photographed at the reduction ratio of 1 : 20.

4.3 Deformation of image on screen

4.3.1 Distortional deformation The distortional deformation shall not be more than 0.5 % when tested in accordance with 7.4.

4.3.2 Trapezoidal deformation The trapezoidal deformation shall not be more than 2 % when tested in accordance with 7.5.

4.3.3 Rhombic deformation The rhombic deformation shall not be more than 2 % when tested in accordance with 7.6.

4.4 Screen luminance and contrast

4.4.1 Screen luminance The screen luminance shall not be less than 140 cd/m² at the center of the screen and not less than 35 cd/m² at other measuring points when tested in accordance with 7.7.

4.4.2 Screen luminance ratio The screen luminance ratio shall, when tested in accordance with 7.7, be as follows:

- a) In the case of translucent screen, the ratio of the maximum luminance to the minimum luminance shall not exceed 10 : 1. In the case of the screen the diagonal of which is 540 mm or longer, it shall not exceed 15 : 1.
- b) In the case of opaque screen, the ratio of the maximum luminance to the minimum luminance shall not exceed 5 : 1.

4.4.3 Screen contrast The screen contrast shall be as follows :

- a) The screen contrast shall not be less than 10 : 1 when tested in accordance with 7.8.
- b) The readability shall not be affected by stray light or interference light caused by the design or structure of the reader.
- c) The readability shall not be affected by illumination within the room.

4.4.4 Aberration and chromatic aberration There shall not be any geometrical and optical aberration and chromatic aberration likely to reduce the legibility of the images on the screen.

4.5 Size of screen The size of screen shall be as follows:

- a) The screen shall be sufficiently large to project the full image frame.
- b) For the readers equipped with an image rotating device, the screen shall be of sufficient size to allow the projection of the full image frame in both horizontal and vertical positions, unless equipped with a scanning device.

4.6 Compatibility with microform The compatibility with the microforms shall be as follows:

- a) Roll film readers shall display on the screen upright at least one of the image formats specified in **ISO 6199**.
- b) Microfiche readers shall display on the screen upright at least one of the image formats specified in **ISO 9923**.
- c) Image card readers shall display on the screen upright at least one of the image formats specified in **ISO/DIS 3272-3**.
- d) The microform carrier or film positioning mechanism designed to accommodate a reel, cartridge or cassette as specified in **ISO 1116**, **ISO/DIS 7761** and **ISO/DIS 7762** shall not abrade the film to be harmful to its use.

4.7 Microform carrying mechanism

4.7.1 Sheet film carrier The sheet film carrier shall be as follows:

- a) When shifting a frame, the re-adjustment of focus shall be unnecessary.