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## JIS B 7163 : 1997

### Slide projectors

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**ICS** 37.040.10

**Descriptors** : still-picture projectors

**Reference number** : JIS B 7163 : 1997 (E)

B 7163 : 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 7163 :1990 is replaced with JIS B 7163 :1997.

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## Slide projectors

**Preface** This Japanese Industrial Standard made on the basis of **ISO 1755**, *Photography — Projector slides — Dimensions* published in 1987 as the 2nd edition, **ISO 7329**, *Photography — Slide projectors — Determination of temperature rise in the picture area using a glass sandwich test slide* published in 1989 as the 1st edition and **ISO 9559**, *Photography — 35 mm filmstrip projectors — Specifications for frame masks* published in 1989 as the 1st edition, without changing the technical contents as for the corresponding parts contains the items not included in the corresponding International Standard such as performance, construction and function, resolution, chromatic aberration, distortion of image, temperature rise of film, inspection, marking and instruction manual).

**1 Scope** This Japanese Industrial Standard specifies the slide projectors capable of projecting one type or several types of slides and filmstrips (hereafter referred to as "projectors"). This Standard does not apply to the projectors using the built-in screen only whose long side is not more than 120 mm.

Remarks : The following are the corresponding International Standards to this Standard.

ISO 1755 : 1987 *Photography — Projector slides — Dimensions*

ISO 7329 : 1989 *Photography — Slide projectors — Determination of temperature rise in the picture area using a glass sandwich test slide*

ISO 9559 : 1989 *Photography — 35 mm filmstrip projectors — Specifications for frame masks*

**2 Normative references** The following standards contain provisions which through reference in this test, constitute provisions of this Standard. The latest editions of them apply.

JIS B 7181 *Resolving power test charts for projection lens*

JIS C 1102-2 *Direct acting indicating analogue electrical measuring instruments and their accessories Part 2 : Special requirements for ammeters and voltmeters*

JIS C 1609 *Illuminance meters*

**3 Types of slides and filmstrips** The types of slides and filmstrips shall be as shown in Table 1 and Table 2.

**Table 1 Types of slides**

Unit : mm

| Type       | Overall size                                                       | Thickness     | Picture area<br>(nominal) | Aperture                   | Maximum radius<br>of corners |
|------------|--------------------------------------------------------------------|---------------|---------------------------|----------------------------|------------------------------|
| 3 × 3 size | $30.0 \times 30.0 \begin{smallmatrix} +0.6 \\ 0 \end{smallmatrix}$ | 1.0 to 1.4    | 13 × 17                   | $12.0 \times 15.8 \pm 0.1$ | 0.5                          |
| 5 × 5 size | $50.0 \times 50.0 \begin{smallmatrix} +0.8 \\ 0 \end{smallmatrix}$ | 1.0 to 3.2    | 18 × 24                   | $15.5 \times 22.5 \pm 0.5$ | 1.2                          |
|            |                                                                    |               | 24 × 24                   | $22.5 \times 22.5 \pm 0.5$ |                              |
|            |                                                                    |               | 24 × 36                   | $22.5 \times 34.3 \pm 0.5$ |                              |
|            |                                                                    |               | 28 × 28                   | $26.5 \times 26.5 \pm 0.5$ |                              |
|            |                                                                    |               | 40 × 40                   | $37.5 \times 37.5 \pm 0.7$ |                              |
| 7 × 7 size | $69.9 \times 69.9 \pm 0.8$                                         | 3.5 (maximum) | 56 × 56                   | $53.5 \times 53.5 \pm 0.7$ | 2.0                          |

**Table 2 Types of filmstrips**

Unit : mm

| Types      | Frame masks of projectors                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------------------|
| 35 mm size | $23.5 \begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix} \times 35.3 \begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$ |
| Half size  | $17.3 \pm 0.1 \times 23.5 \begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$                                         |

## 4 Performance

**4.1 General** The performance of projectors shall be as specified in 4.2 to 4.7. However, the projector that uses a built-in screen only is permissible when the other performance than that in 4.7 is in such a degree as not impedimental in practice.

**4.2 Resolution** The resolution shall, when tested in accordance with 6.2, be 24 lines or more/mm at the center of picture area, 19 lines or more/mm at upper and lower sides of picture area, 15 lines or more/mm at left and right sides of picture area and 9.5 lines or more/mm at corner parts of picture area.

**4.3 Chromatic aberration** The chromatic aberration shall be to such a extent as not recognized by the naked eye when tested in accordance with 6.3.

**4.4 Distortion of images** The distortion of images shall be 3 mm or under for the lenses of definite focal length and 6 mm or under for other lenses when tested in accordance with 6.4.

**4.5 Effective luminous flux** The luminous flux shall be 500 lm or more when tested in accordance with 6.5.

**4.6 Illuminance ratio** The illuminance ratio between the corner part and the center part shall be  $U_{65}$  % or more and  $U_{20}$  45 % or more when tested in accordance with 6.6.

**4.7 Temperature rise of film** The temperature rise of film shall, when tested in accordance with 6.7, be as follows :

- a) 65 K or under when light source is incandescent lamp or halogen lamp.
- b) When the light source is a discharge lamp such as xenon lamp or metal halide lamp, the description shall be given on the instruction manual of projector and the like as to the attention to be paid to temperature rise.

## 5 Construction and function

5.1 The construction and function of projectors shall be as follows :

- a) Under the standard operation conditions, the projectors shall endure the continuous projection for one hour or more.
- b) Leakage current shall be 1 mA or under when operating under normal service condition and measuring by connecting the resistance of 1 K $\Omega$  between the non-charged metallic part liable to be touched by human body and the earth.
- c) Insulation resistance shall be 1 M $\Omega$  or more when measuring the insulation resistance between the non-charged metallic part and power source terminal by means of 500 V insulation-resistance meter.
- d) After the leakage current test and insulation resistance test, when applying alternating voltage of 1 000 V for one minute continuously between the live part and the non-charged part liable to be earthed, the projectors shall withstand it. This test may be carried out by applying alternating voltage of 1 200 V for one second.
- e) Ordinary temperature rise shall be that, when operating continuously applying the voltage equal to the rated voltage of the frequency equal to the rated frequency under the ordinary service condition and the temperature rise on each part becomes approximately constant<sup>(1)</sup>, the temperature measured on each part shall be the values given in Table 3 or lower.

Note <sup>(1)</sup> The time when the temperature rise becomes approximately constant is a state where the difference of temperatures in 30 minutes is 0.5 K or under.