



JAPANESE
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STANDARD

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(JMOIA/JSA)

**Ophthalmic instruments—Trial case
lenses**

ICS 11.040.70

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Health, Labour and Welfare through deliberations at the Japanese Industrial Standards Committee, as the result of proposal for revision of Japanese Industrial Standard submitted by the Japan Medical-optical Equipment Industrial Association (JMOIA)/the 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 T 4402 : 1953** is replaced with this Standard.

ISO 9801 : 1997 *Ophthalmic instruments—Trial case lenses* has been employed as the basis to conform to this revision.

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

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Ophthalmic instruments— Trial case lenses

Introduction This Japanese Industrial Standard has been prepared by adding partly technical contents and modifying in conformance with actual circumstances in Japan based on **ISO 9801 : 1997** *Ophthalmic instruments—Trial case lenses* issued as the first edition in 1997.

Portions underlined with dots in this Standard are matters not included in the corresponding International Standard.

1 Scope This Standard specifies requirements for mounted ophthalmic full- and/or reduced-aperture trial case lenses for the determination of the refractive error of the eye.

This Standard takes priority over **ISO 15004**, if differences exist.

Note : The International Standard corresponding to this Standard is as follows.

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

ISO 9801 : 1997 *Ophthalmic instruments—Trial case lenses* (MOD)

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 (including amendments) indicated below shall be applied.

JIS B 7090 *Optics and optical instruments—Reference wavelengths*

Remarks : **ISO 7944** *Optics and optical instruments—Reference wavelength* is equivalent to the said standard.

JIS T 7330 *Ophthalmic optics—Spectacle lenses—Vocabulary*

Remarks : **ISO 13666** *Ophthalmic optics—Spectacle lenses—Vocabulary* is equivalent to the said standard.

ISO 8429 *Optics and optical instruments—Ophthalmology—Graduated dial scale*

ISO 8598 *Optics and optical instruments—Focimeters*

ISO 12867 *Ophthalmic instruments—Trial frames*

ISO 15004 *Ophthalmic instruments—Fundamental requirements and test methods*

3 Definitions For the purposes of this Standard, the definitions given in **JIS T 7330** and the following apply.

3.1

trial cases lens

lens, in a mount, which is used to assess the refractive error of the human eye

3.2

full-aperture trial case lens

trial case lens with a protective mount of maximal practical wall thickness of approximately 1 mm, allowing the maximum available free lens aperture

3.3

reduced-aperture trial case lens

trial case lens with the designated free lens aperture significantly less than the mount outer diameter, allowing for considerable reduction in lens thicknesses to be made

3.4

additive power trial case lens set

train of spherical, cylindrical or spherocylindrical combination of trial case lenses, in which the measured back-vertex power at the last surface equals the meridional sum of the labelled values of the train lenses when each element is placed in its specified frame cell (see **ISO 12867**)

3.5

lens power

- a) <spherical lens> back-vertex power, the unit being the reciprocal number of meter (m^{-1}), expressed in dioptres (D)
- b) <cylindrical lens> back-vertex power in the principal meridian not equal to zero, the unit being the reciprocal number of meter (m^{-1}), expressed in dioptres (D)

Note : Cylindrical trial case lenses have one principal meridian with zero power.

3.6

prismatic power

<prismatic lens, prism> prismatic effect, measured as the displacement, in centimetres, of the light ray in a plane perpendicular to its line of incidence on the lens at a distance of 1 m

Note 1 Prismatic power, with the unit cm/m, is expressed in prism dioptres (Δ).

Note 2 The prism base is marked by a line or triangle on the mount (see clause 6).

Note 3 The position of the prism base is indicated according to **ISO 8429**.

3.7

type test

a test is provided for confirming, when one or more instruments manufactured according to a specific design are tested, that the design satisfies a specification

4 Requirements

4.1 General The trial case lenses shall conform to the requirements specified in **ISO 15004**. Conformity to the requirements specified in 4.2, 4.3 and 4.4 shall be verified as described in clause 5.

4.2 Optical requirements The trial case lenses shall conform to the requirements specified in tables 1 to 6. Conformity to these requirements shall be verified as described in 5.1.

The dioptric powers indicated in tables 1 to 4 shall be referenced to the wavelength $\lambda_e = 546.07$ nm or alternatively $\lambda_d = 587.56$ nm according to **JIS B 7090**.

If the requirements are not met for both wavelengths, the reference wavelength used shall be indicated.

Note : Even in fields concerning ophthalmic optics, only one reference wavelength is taken as a target in future.

Further, in the domestic ophthalmic optics-concerning field, use of e-line as a reference wavelength is recommended.

The requirements for lenses with nominal zero power (plano) are given in table 1.

Table 1 Tolerances on lenses with zero power

Nominal lens power	Tolerance on		
	mean power $\frac{S_1+S_2}{2}$	residual astigmatism $ S_1-S_2 $	prismatic power
D	D	D	Δ
0.00	± 0.03	0.03	0.06
NOTE — S_1 and S_2 refer to the vertex powers in the principal meridians.			

The requirements for lenses with spherical power are given in table 2.

Table 2 Tolerances on lenses with spherical power

Nominal spherical power (absolute)	Tolerance on	
	mean power $\frac{S_1+S_2}{2}$	residual astigmatism $ S_1-S_2 $
D	D	D
0.12	± 0.03	0.03
> 0.12 to 6.00	± 0.06	0.03
> 6.00 to 12.00	± 0.09	0.03
> 12.00	± 0.12	0.03
NOTE — S_1 and S_2 refer to the vertex powers in the principal meridians.		

The requirements for lenses with cylindrical power are as follows:

- The tolerances in the afocal principal meridian shall be ± 0.03 D and 0.12 Δ .
- The tolerances on the cylindrical power principal meridian are given in table 3.