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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**[GB/T 17341-1998] Optics and optical instruments. Focimeters
(English Translation)**

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1 Scope

This standard specifies the general specifications for focimeters.

This standard applies to continuously indicating focimeter and digitally rounding focimeter.

2 Normative references

The provisions contained in the following standards constitute the provisions of this standard through quotation in this standard. At the time of publication, the editions indicated were valid. All standards will be revised, and all parties using this standard shall explore the possibility of using the latest version of the following standards.

GB 2828-87 Sampling procedures and tables for lot-by-lot inspection by attributes (Apply to inspection of successive lots or batches)

GB 10050-88 Optics and optical instruments - Reference wavelengths

GB/T 15464-1995 General-purpose specification for the packaging of instrumentation products

ZBY 002-81 Basic environmental conditions and test methods for transportation and storage of instruments and meters

JJG 580-96 Verification regulation of focimeters

JJG 866-94 Verification regulation of standard lenses of vertex power

3 Definition

This standard uses the following definition.

3.1

Focimeter

An instrument, which is mainly used to measure the vertex power (D) and prismatic power (Δ) of spectacle lenses (including corneal contact lenses);

determine the cylinder axis direction of the cylindrical lens; print marks on the uncut lens; check whether the lens is installed correctly in the frame.

3.6

Spherical power

The back vertex power of the spherical lens is called the spherical power.

Spherical lenses are lenses, which make paraxial parallel light rays converge at one focal point. This definition also applies to single visual distance aspheric lenses.

3.7

Astigmatic power

The difference between the two main vertex powers in the cylindrical lens.

Cylindrical lenses are lenses, which make paraxial parallel rays converge on two separate and orthogonal focal lines. Unlike spherical lenses, they contain two main vertex powers. One of the main vertex powers can be zero;

the corresponding focal line is at infinity. The toric lens, combined spherical and cylindrical lenses, and cylindrical lenses are all cylindrical lenses.

Cylindrical lenses are also called astigmatism lenses.

4 Categories

According to the display mode, the focimeter is divided into two types.

continuous indicating type and digital rounding type.

According to the working principle, focimeters are divided into two types.

focimeters based on the principle of focusing and imaging AND focimeters based on the principle of autofocus.

According to the different observation methods, the focimeter based on the principle of focusing and imaging is further divided into two types. visual type and projection type.

The visual focimeter uses a reading telephoto system for observation; whilst the projection type focimeter uses a projection objective lens and a projection screen for observation.

5.1 Reference wavelength

The reference wavelength, which is used to display the vertex power and

Use a piece of white paper instead of the inspected lens, to adjust the focus of the eyepiece crosshairs clearly. Then remove the white paper. Focus the measurement target image of the instrument clearly.

7.2.1.2 Inspection of parallax-elimination

Adjust the focus of the crosshairs and the target image, according to 7.2.1.1.

Then it may check whether the parallax has been eliminated. The observer moves his gaze back and forth above the eyepiece; there shall be no obvious shift between the crosshairs and the target image.

7.2.2 Visually check whether the instrument meets the requirements of 6.5.

7.3 Inspection of vertex power indication

Use one group of spherical standard lens (it shall comply with the requirements of JJG 866-94), to check whether the indication error of vertex power meets the requirements of Table 1.

7.3.1

When the lens is not placed, the indication of vertex power of the instrument shall meet the requirements of 6.6.1.

7.3.2 Measure the spherical standard lenses one by one. The indication of

vertex power of the instrument shall meet the requirements of 6.6.2.

7.4 Inspection of indication of prismatic power

Use a set of prismatic standard lenses (it shall meet the requirements of JJG

866-94), to check whether the indication error of the prismatic power meets the requirements of Table 2.

7.4.1

When checking the prismatic power, it shall first make the vertex power of the instrument become zero.

7.4.2 Measure the prismatic standard lenses in sequence; the indication of

prismatic power of the instrument shall meet the requirements of 6.7.

7.5 Inspection of the deviation BETWEEN the axis mark of the optical center of the lens AND the optical axis of the focimeter

Use a +15D spherical standard lens (it shall comply with the requirements of

JJG 866-94). First align the center, so that the prismatic power is zero. Then mark the center axis's position. Then rotate the spherical standard lens by 180°.

Center it again. Mark the center axis's position again.

The half of the distance, between the axis marks of the center point, which are made for the first time and the second time, shall not be greater than 0.4 mm.

8.2.2 The items of the exit-factory inspection are 6.1 ~ 6.10 of this standard.

8.3 Type inspection

8.3.1

Type inspection shall be carried out in one of the following situations.

- a) When the new product is subject to type-finalization identification, OR the old product is subject to prototype test after trans-plant production;
- b) After normal production, if there are major changes in structure, material, process, which may affect product performance;
- c) During normal production, inspections shall be carried out periodically or after accumulating a certain output;
- d) When production resumes after a long-term suspension of production;
- e) When there is a big difference BETWEEN the exit-factory inspection result AND the last type inspection;
- f) When the national quality supervision agency puts forward a requirement for type inspection.

8.3.2

The type inspection shall include all the items, which are specified in this standard. The samples for the type inspection shall be taken from the qualified products of the exit-factory inspection.