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JY

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

JY/T 0164-2011

Replacing JY 164-1984

**Eyeball Anatomy Model
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work_Part 1. Structure and Preparation of Standards" this standard replaces JY 164-1984 "Technical Specifications for Eyeball Anatomical Enlargement Model". In addition to editorial changes, the main technical changes are as follows.

-Appearance size has increased allowable tolerances;

-Added the requirement that the main parts of the model should be affixed with name or

number tags;

-Specifies the materials that should and should not be used for the model;

-Specify the limit of heavy metal content in the paint of the model.

Please note that some elements of this standard may involve patents. The issuer of this standard is not responsible for identifying these patents.

This standard was proposed by the National Technical Committee for Standardization of Teaching Instruments (SAC/TC125).

This standard is under the jurisdiction of the National Technical Committee for Standardization of Teaching Instruments (SAC/TC125).

1 Scope

This standard specifies the nomenclature, requirements, test methods, inspection rules and signs, packaging, transportation, and storage of eyeball anatomical models.

This standard applies to the human eye anatomy model for teaching anatomy.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 21746-2008 General requirements for safety requirements of teaching instruments and equipment
JY 0001-2003 General quality requirements for teaching instruments and equipment
products JY 0002 Inspection rules for teaching instruments and equipment
products JY 0026-1991 teaching instrument and teaching equipment product model naming
method JY 0213-1994 Teaching mechanical, thermal instrument transportation, storage
environmental conditions and test methods

3.1 Naming rules

The model name of the product is JY 0026-1991.

3.2 Nomenclature

The eyeball anatomical model is named.

SM - YQJP - CR - 145 Product front and rear diameter, 145mm Product Feature Code,
Adult Product name Pinyin prefix, "eyeball anatomy" Product model classification code,
biological model Model example.

SM-YQJP-CR-145 represents a biological model, an anatomical model of an eyeball, an

adult, and anterior and posterior diameter of 145mm.

4.1 Use environmental conditions

Temperature. -10 °C ~ 40 °C, relative humidity. not more than 90%.

4.2.1 General requirements

4.2.1.1

The product is an enlarged model of an adult eyeball. The front and rear outer diameters are $145 \text{ mm} \pm 3 \text{ mm}$.

4.2.1.2

The eyeball is slightly spherical, with the cornea at the front and the sclera at the back, and the iris and pupil through the cornea.

4.2.1.3

Six extraocular muscle stumps, optic nerves, vortex veins, long posterior ciliary artery (iris artery) and short posterior ciliary artery (pulse) Choroidal artery).

4.2.1.4

Make the median horizontal section of the eyeball wall through the front and back poles of the eyeball, showing the three layers of the eyeball wall, the outer membrane, the middle membrane and the inner membrane. Eyeball the three layers of the upper half of the wall are trapezoidal sections from the outside to the inside, and show the structure of each layer.

4.2.1.5

The cornea and iris should be completely displayed, and both the lens and vitreous body in the eyeball can be removed separately.

4.2.1.6

The morphological structure, position, proportion, and color of the muscles, membrane walls, blood vessels, and nerves of each part shall be correct and natural.

4.2.2.1 Sectional structure of the eyeball wall

4.2.2.1.1

The outer membrane shows the following structure.

a) The cornea. it accounts for the first 1/6 of the adventitia. Its external dimensions are shown in Figure 1. It should be colorless and transparent. The height H of the enlarged cornea is. $15 \text{ mm} \pm 1 \text{ mm}$, outer diameter Φ . $70 \text{ mm} \pm 1 \text{ mm}$, thickness t. $2.5 \text{ mm} \pm 1 \text{ mm}$;

figure 1

b) Sclera. Occupying the last 5/6 of the adventitia, the sclera and sinus should be displayed at the junction of the sclera and the cornea. Sclera thickness the menstruation is. $6\text{mm} \pm 1\text{mm}$, and the thickness after the eye muscle attachment and the tendon fusion is. $5\text{mm} \pm 1\text{mm}$.

4.2.2.1.2

The membrane shall show the following structure.

a) Iris. It is located at the front of the middle membrane, behind the cornea, and is disc-shaped. The diameter of the circular pupil in the center is $24\text{mm} \pm 1\text{mm}$. Anterior chamber the deepest point (that is, the center of the inner edge of the cornea to the middle of the pupil) is. $20\text{mm} \pm 5\text{mm}$;

b) Ciliary body. In front of the choroid, the structural features of the ciliary ring, ciliary process, and ciliary zonula inside the ciliary body should be correctly displayed and the relationship between them, in which 70 to 80 ciliary processes, arranged in a radial pattern. The ciliary muscle fibers should be oriented correctly, its connection with the sclera should be accurate;

c) Choroid. Located between the sclera and retina, it should show structural features rich in blood vessels and pigments.

4.2.2.1.3

Endometrium. showing the optic disc and macula of the retina and its back, as well as retinal blood vessels.

The retina is the innermost layer of the eyeball wall, which is closely attached to the inner surface of the choroid. The optic disc is located at the back of the eyeball (fundus), with a diameter of $10\text{mm} \pm 1\text{mm}$; the macula is located slightly below the temporal side of the optic disc, and is similar in size to the optic disc. Optic disc the distance between the center point and the macular fovea is $21\text{ mm} \pm 3\text{ mm}$. Retinal blood vessels should show that the central retinal artery has penetrated the optic disc.

Main branches, including the superior and inferior arterioles of the nasal side of the retina and their accompanying small veins of the same name Vein of the same name. The distribution and orientation of blood vessels, as well as the mismatch between the central arteries in the intraretinal branches and the absence of blood vessels in the macula should be shown correctly Structural features.

4.2.2.2 Lenses and vitreous

4.2.2.2.1

Lens. biconvex lens shape, colorless and transparent, the external dimensions are shown in Figure 2. There is a ciliary band between the lens and the ciliary process.