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

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Rings

吊环

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5.1 Appearance and Structure

5.1.1 The ring material should be wood or non-metallic synthetic material, and the surface should not be treated in any other way except for sanding, so as to maintain the natural color of the material.

5.1.2 The surface of the ring should be flat, the stitching thread spacing should be uniform, and it should not scratch the skin.

5.1.3 The accessible surfaces of the lifting rings should not have sharp corners, sharp edges, or burrs. Edges and sharp corners should be rounded or protected.

5.1.4 The protective layer of metal parts shall be free from defects such as missed coating, paint cracks, blistering, pores, exposed substrate, and scratches.

5.1.5 The welded joints should be free from defects such as porosity, slag inclusions, and incomplete welds.

5.1.6 The height of the lifting ring frame should be adjustable, the lifting and lowering should be flexible, and the positioning and locking should be reliable.

5.1.7 The crossbeam shall have a suspension device that can suspend two rings, and the slings of the suspension device shall be wrapped with smooth synthetic material.

5.1.8 The base of the column should have an increased area.

5.2 Basic Dimensions The basic dimensional parameters shall conform to the specifications in Figure 1, Figure 2 and Table 1.

5.3 Performance

5.3.1 Suspension device The suspension device should be able to swing freely, and the connection between the top and the horizontal beam and the sling should be able to rotate freely when the loop is under stress.

5.3.2 Static Load After the test in 6.3.3, the maximum deformation of the inner diameter of the competition-type lifting ring should be $\leq 5\text{mm}$. After removing the external force, the ring should not deform. The sling and strap should not be damaged. After the external force is removed from a standard lifting ring, the ring should not deform, and the sling and strap should not be damaged.

5.3.3 Ultimate Load of the Cable System After the test in 6.3.4, the rope system should not come loose, detach from the weld, or break. The rope tensioner should operate flexibly, and there should be no visible residue after the external force is removed. Deformation.

5.3.4 Corrosion resistance of electroplated coating After the test in 6.3.5, the electroplated parts should not show signs of corrosion.

6 Test Methods

6.1 Appearance and structural inspection Sensory inspection under normal lighting conditions.

6.2 Basic Dimension Inspection The measurements were taken using a vernier caliper with a graduation of

0.02 mm and a steel tape measure with a graduation of

0.5 mm.

6.3.1 Test Conditions

6.3.1.1 The test ring should be placed in an environment with a relative humidity of 30%~70% and a temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 24 hours, and then placed in the same environment. Conduct the test.

6.3.1.2 The lifting ring is installed securely, and the lowest point of the inner diameter of the ring is $2900\text{mm} \pm 5\text{mm}$ above the ground.

6.3.2 Suspension device Visual inspection under normal lighting conditions.

6.3.3 Static Load A static load is applied to the ring using a rope with a width of $35\text{mm} \pm 1\text{mm}$, and then evenly applied to the racing ring for 1 to 2 minutes. Apply a static load of $4000\text{N} \pm 40\text{N}$ rapidly, and then apply a static load of $3000\text{N} \pm 40\text{N}$ uniformly over a standard lifting ring for 1-2 minutes. The load (F), see Figure 3, is measured. The maximum deformation is measured. After the load is removed, the condition of the rings, slings and

belts is checked. They should meet the requirements of 5.3.2.

6.3.4 Ultimate Load of the Cable System Take a steel wire rope with a length of $500\text{mm} \pm 30\text{mm}$ and rigging at both ends, a chain with a length of $600\text{mm} \pm 50\text{mm}$, and a length of... Three sets of specimens, including a tensioner and connector with a diameter of $380\text{mm} \pm 30\text{mm}$, were fixed on a tensile testing machine with an accuracy of

0.5 grade and tested at a speed of 10mm/min . The load is applied at a speed of 8000 N and held for 5 min. All three groups of samples should meet the requirements of 5.3.3.

6.3.5 Corrosion resistance of electroplated coating Take the part to be tested or a specimen of the same material as the part to be tested, and conduct a neutral salt spray test according to GB/T 10125. The test cycle is 144 hours. Observe the changes in the sample.

7 Inspection Rules

7.1 Inspection Classification Inspection is divided into factory inspection and type inspection.

7.2 Factory Inspection

7.2.1 Inspection Quantity Each lifting ring product should be inspected before leaving the factory.

7.2.2 Inspection Items The inspection shall be carried out in accordance with the factory inspection items, requirements and test methods specified in Table 2.

7.2.3 Judgment Rules All factory inspection items for the lifting rings meet the requirements; therefore, the lifting rings are deemed (qualified) upon leaving the factory. If any item fails to meet the requirements, the lifting rings are deemed (qualified) upon leaving the factory. The factory inspection was unsatisfactory.

7.3 Type Testing

7.3.1 Type testing shall be conducted under any of the following circumstances.

- a) New product trial production and type approval or new product transfer to another factory for trial production and type approval;
- b) Changes in design, manufacturing process, or materials may affect product quality;
- c) During normal production, this should be carried out once every 2 years;
- d) Production resumes after a shutdown of more than six months;
- e) The factory inspection results differed significantly from the previous type inspection results.

7.3.2 For type testing, one pair of lifting rings shall be randomly selected from the batch that

has passed factory inspection, and the type testing shall be conducted according to the type testing items specified in Table 2. The requirements, experimental methods, etc. are used for verification.

7.3.3 If all type test items meet the requirements, the type test is deemed qualified; if any item fails to meet the requirements, double the sampling is allowed. Then, all items are re-inspected. If the re-inspection meets the requirements, the type test is still deemed qualified; if there are still items that do not meet the requirements, then the type test is deemed failed. The type test failed. Samples for type testing should not be delivered to the ordering party as qualified products.

8 Marking, Packaging, Transport and Storage

8.1 Marking The following should be clearly labeled on the instrument.

- a) Product name, model, and category;
- b) Name and trademark (if any) and address of the manufacturing company;
- c) Manufacturing date and warranty period;
- d) Implementation standards.

8.2 Packaging Product packaging should be sturdy, with clear markings, and graphic symbols should conform to the provisions of GB/T 191.

8.3 Transportation During transportation, the product should be protected from squeezing, impact, rain, moisture, and chemical corrosion.

8.4 Storage This product should be stored in a well-ventilated warehouse and should not come into contact with salt, alkali, or acidic substances.