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

GB/T 8397-2026

Replacing GB/T 8397-2007

Balance beam

平衡木

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Table of Contents

2 Impact points on the balance beam

5 Requirements

5.1 Appearance and Structure

5.1.1 Appearance

5.1.2 Structure

5.3 Performance

6 Test Methods

6.3 Performance

6.3.1 Test Conditions

6.3.2 Resilience and cushioning performance

6.3.3 Coefficient of friction of the crossbeam

7 Inspection Rules

7.2 Factory Inspection

7.3 Type Testing

8 Marking, Packaging, Transport and Storage

2 Impact points on the balance beam

6.3.2.3 Align the center of the load plate with a set inspection point and adjust the drop height of the impact hammer to 120mm.

6.3.2.4 Test and record the indentation amount, indentation energy, rebound amount, and rebound strength. Each impact point is impacted 5 times, and each impact completes one test. At the designated point, the impact hammer rises and leaves the upper surface of the balance beam. Adjust the load plate to align with the next inspection point; the interval between two impacts should be... No less than 120 seconds.

6.3.2.5 The average value of the test results at each test point is the depression amount, depression energy, rebound amount, and rebound strength at that point. This includes all indicators at the seven test points. The total average values are the maximum sinking amount, sinking energy, rebound amount, and rebound strength of the balance beam crossbeam.

6.3.2.6 The sinkage energy (E) is the area under the force-sinkage curve calculated from the integral value or the area under the curve, expressed in Nm (Newton-meter). According to formula (1) Calculate and keep the result to two decimal places.

5.1.1 Appearance

5.1.1.1 The beam covering should be smooth, firmly bonded, and without obvious color difference.

5.1.1.2 The protective coating on metal parts shall be free from defects such as missed coating, blistering, and pinholes, and shall have a consistent color with no color difference.

5.1.1.3 The weld should be smooth and free from defects such as incomplete welds, incomplete welds, burn-through, and obvious weld beads.

5.1.2 Structure

5.1.2.1 The balance beam should be securely installed, with flexible lifting and locking, and the beam height should be adjustable, either steplessly or with an adjustment interval of 50mm.

5.1.2.2 The crossbeam should be straight, flexible, and covered with a cushioning layer and anti-slip material. The surface material should not cause skin abrasions or burns to the user. Damage; all protruding parts under the crossbeam should be protected or concealed; all parts of the balance beam should be free of sharp edges and corners.

5.1.2.3 The ends of the crossbeam should have a buffer filler, the hardness of which should not be higher than that of the main body of the crossbeam, and the buffer filler should not extend the total length of the crossbeam; the crossbeam The sides should be curved.

5.1.2.4 The outer edge of the fixing connection device and support leg of the crossbeam shall not exceed the longitudinal vertical projection range of the crossbeam.

5.2 Basic Dimensions The basic dimensions and their limit deviations shall conform to the specifications in Figure 1 and Table 1.

5.3 Performance

5.3.1 Resilience and cushioning performance The elasticity and cushioning performance of the competition balance beam should meet the requirements of Table 2.

5.3.2 Coefficient of friction of the crossbeam The coefficient of friction (μ) of the crossbeam of the competition-type balance beam should conform to the specifications in Table 3.

5.3.3 Corrosion resistance of electroplated coating After the electroplated parts have undergone the test in 6.3.4, no rust should be observed.

6 Test Methods

6.1 Appearance and Structure Sensory inspection was conducted under normal lighting conditions.

6.2 Basic Dimensions The straightness of the beam was measured using a vernier caliper with a graduation of

0.02 mm and a steel tape measure with a graduation of

0.5 mm and a measuring range of 5 m. The degree is checked on the inspection platform using a feeler gauge with a graduation value of 0.02mm.

6.3.1 Test Conditions

6.3.1.1 Samples should be pre-conditioned for at least 24 hours under environmental conditions of 30%~70% relative humidity and $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$ before testing. All tests are performed under the specified conditions.

6.3.1.2 Install the balance beam on a flat and hard horizontal surface, and adjust the height of the upper edge of the beam from the ground to 1250mm.

6.3.1.3 The testing equipment shall conform to Appendix A.

6.3.2 Resilience and cushioning performance

6.3.2.1 Impact Hammer. The bottom surface of the impact block is flat, and the mass is $15\text{kg}\pm 0.1\text{kg}$.

6.3.2.2 Impact points. Seven impact points are located on the crossbeam of the balance beam. The distribution of impact points is shown in Figure 2. The unit is millimeters.

Note. Points 2 and 6 are the intersections of the beam and the column. Figure

6.3.3 Coefficient of friction of the crossbeam

6.3.3.1 The distribution of the three inspection points on the upper surface of the balance beam and the four opposite traction force directions at each inspection point are shown in Figure 3. The unit is millimeters. Figure

3. Friction test points and their directions on the upper surface of the balance beam.

6.3.3.2 Before each test, apply 1g of magnesium carbonate powder evenly within a 5cm diameter centered on each test point.

6.3.3.3 At a position less than or equal to 1 cm above the bottom surface of the friction block, a constant loading rate of $5\text{ N/s} \pm$

0.5 N/s is applied along a given path. Pull the friction block horizontally until the pulling force reaches its maximum value, obtain and record the pulling force, and the coefficient of friction is the sum of the maximum traction force (F_1) and the weight of the slider. The ratio of (G_1) is calculated according to formula (3), and the result is rounded to 3 decimal places.

6.3.3.4 Repeat the above test 5 times in each direction at each test point.

6.3.3.5 Calculate the average and total average friction coefficients at the three test points, and calculate the maximum and minimum friction coefficients at the three test points. The difference is used to determine the difference in the average friction coefficient along the length direction of all test points.

6.3.4 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 [number missing]. 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 balance beam 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 4.

7.2.3 Judgment Rules All items in the balance beam's factory inspection met the requirements; therefore, the balance beam passed the factory inspection. If any item fails to meet the requirements, the balance beam is deemed unqualified. The timber failed the factory inspection.

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 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 balance beam sample 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 4. The requirements, experimental methods, etc. are used for verification.