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

GB/T 8391-2026

Replacing GB/T 8391-2007

Parallel bars

双杠

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Foreword

This document was issued on 30 April 2026 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 May 2027.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 97.220.30, Chinese classification Y55.

It replaces GB/T 8391-2007, which is superseded.

1 Scope

GB/T 8391-2026 is the Chinese national standard for gymnastic parallel bars - the apparatus itself, not the exercise. It divides parallel bars into competition and ordinary types, and for each it fixes the appearance and structure, the basic dimensions with their limit deviations, and the mechanical performance the frame has to hold. The performance clauses are the substance of the document: static traction deformation under a 1350 N pull, the swing load and deformation measured with a 60 kg pendulum dropped through a 500 mm stroke, the vibration frequency and half-amplitude decay period, a lateral stability floor of 900 N, and the corrosion resistance of electroplated parts after a 144-hour neutral salt spray. Clause 6 gives the matching test methods, including the conditioning of samples at 20 C and 30-70 % relative humidity and the pendulum rig described in Annex A. Clause 7 splits inspection into factory inspection, applied to every unit before shipment, and type testing triggered by a new product, a change of factory or a change of design. Clause 8 covers marking, packaging, transport and storage. It applies to the design, manufacture and

inspection of gymnastic parallel bars, and replaces GB/T 8391-2007.

This document defines the terminology and definitions for parallel bars, specifies their classification, requirements, inspection rules, marking, packaging, transportation, and storage, and describes...

The corresponding experimental methods are described.

This document applies to the design, manufacture, and inspection of gymnastic parallel bars.

4 Classification

Depending on the application scenario, parallel bars are divided into competition parallel bars and ordinary parallel bars.

5 Requirements

5.1 Appearance and Structure

5.1.1 Appearance

5.1.1.1 The horizontal bar should be made of wood or have a wood surface, retain the natural color of the wood, be of uniform thickness, straight and smooth without hard edges, cracks and twists.

5.1.1.2 The protective coating on metal parts shall be free from defects such as missed coating, blistering, and pinholes.

5.1.1.3 No sharp edges or corners should be present on any part of the parallel bars.

5.1.1.4 The weld should be smooth and free from welding defects such as incomplete welds, incomplete welds, and obvious weld beads.

5.1.2 Structure

5.1.2.1 The crossbars should be flexible, hinged, and their surfaces should be hygroscopic. The spacing between the crossbars should be infinitely adjustable, easy and flexible to adjust, and securely locked.

It is reliable.

5.1.2.2 The base should be stable and should not move during use.

5.1.2.3 The height of the crossbar should be adjustable, the adjustment mechanism should be tightly fitted, the operation should be flexible, and the locking should be secure.

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 Static traction deformation

The static traction deformation should meet the requirements of Table 2.

5.3.2 Oscillating Load and Deformation

The average value and deformation of the competition-type parallel bar swing load should meet the requirements of Table 3.

5.3.3 Vibration frequency and half-amplitude period

The vibration frequency and half-amplitude period of the competition-type parallel bars should meet the requirements of Table 4.

5.3.4 Lateral stability

The parallel bars should be able to withstand a lateral traction force of not less than 900N.

5.3.5 Corrosion resistance of electroplated coating

After the test in 6.3.6, the electroplated parts should not show signs of corrosion.

6 Test Methods

6.1 Appearance and Structure

Sensory inspection was conducted under normal lighting conditions.

6.2 Basic Dimensions

The straightness of the horizontal bar 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 Performance

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 degrees C $\pm$ 5 degrees C before testing.

All tests are performed under the specified conditions.

6.3.1.2 Adjust the competition-type parallel bars to a height of 2000mm (adjust the ordinary-type parallel bars to the highest adjustable height of the product).

6.3.1.3 When inspecting static traction deformation, pendulum swing load, and vibration attenuation, the parallel bars should be stable.

6.3.1.4 The testing equipment and testing principle shall comply with Appendix A.

6.3.2 Static traction deformation

The pendulum (total weight 60kg, including an additional 20kg fall weight) is suspended centrally from the horizontal bar, and a load of 1350N $\pm$ is applied along the direction of the pendulum's gravity.

20N, record the vertical deformation at the center of the horizontal bar.

6.3.3 Oscillating Load and Deformation

As shown in Figures 2-5, connect the pendulum (total weight 60kg, including an additional 20kg fall weight) to the crossbar or crossbar connector in a suspended position.

Hanging position; rotate the pendulum from the suspended position to the horizontal position, and raise the additional counterweight inside the pendulum tube to a falling stroke of 500mm $\pm$ 10mm.

Position. Repeat the pendulum swing 5 times in each of the following positions on the parallel bars. at the ends of the two bars (horizontal), in the middle of the two bars (horizontal), and at the ends of the two bars.

The middle (lateral) of the bar; quickly release the pendulum and record the displacement-time change and the pendulum's reaction force-time at each detection point on the bar.

Changes. Record the maximum load and vertical deformation. The data are taken as the arithmetic mean of 5 repeated tests.

6.3.4 Vibration frequency and half-amplitude period

The pendulum (total weight 60kg, including an additional 20kg drop weight) is centered and suspended on the crossbar or crossbar connector;

Pull the pendulum straight down to achieve an initial tension of 1000N $\pm$ 30N, then quickly release the pendulum and record the displacement of the midpoint of the horizontal bar.

The change in amplitude continues until it decays to half of its maximum value (see Figure 6); the vibration frequency (Hz) and the time interval for half-decay (ms) are calculated.

The average of five repeated tests is taken.

6.3.5 Lateral stability

6.3.5.1 Force sensor (range 1000kg, accuracy 0.3%FS), angle meter (4x90°).

6.3.5.2 Use rigid fixing devices to fully constrain the side subjected to lateral force to ensure