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**Test Method of Static Bending Rigidity for Automobile
Wheels**

汽车车轮静态弯曲刚度试验方法

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Test Method of Static Bending Rigidity for Automobile Wheels

1 Scope

This Document specifies the terms and definitions, test samples, test equipment, test procedures and data processing of the test method of static bending rigidity for automobile wheels.

This Document is applicable to the automobile wheels.

2 Normative References

The provisions in following documents become the provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB/T 2933 Wheels/Rims for Pneumatic Tyres - Nomenclature, Designation and Marking

3 Terms and Definitions

For the purposes of this Documents, the terms and definitions given in GB/T 2933 and the following apply.

3.1 Static bending rigidity

The deformability of the wheel against static bending moments.

3.2 Total deflection

The total displacement of the loading point of the force arm along the direction of the loading force under the action of the bending moment of the wheel and the force arm.

4 Test Sample

The test sample shall be a qualified new wheel completed through all the processing

6.3 Connect the measuring system to the end of the force arm. The measuring point can be a certain point in the direction of the force.

6.4 Before starting the test, the residual displacement of each wheel to be tested shall be calibrated according to the following requirements:

- a) Load from 0 and continue to increase the load until 50% of the specified bending moment (M), and the displacement is measured;
- b) Remove the load, measure and check the residual displacement;
- c) Repeat procedures a) and b) until the residual displacement is no greater than 0.03 mm. If the displacement after 3 calibrations still exceeds 0.03mm, the wheel shall be re-clamped and adjust the initial displacement.

6.5 Apply a load, measure and record the total displacement of the wheel and the force arm under each load; and define this displacement as the total deflection δ . The recommended total number of loads is 8 times; each time it is increased by the $(M/8)$ N • m (rounded-off) force arm until reaching the specified bending moment value. The total deflection during the first load is recorded as δ_1 ; the total deflection during the n^{th} load is recorded as δ_n ; and the total deflection under bending moment M is recorded as δ_M . The measurement method for the deflection of the force arm shall be carried out in accordance with the provisions of Appendix A.

6.6 Enter the total deflection δ_n and force arm deflection δ_{An} measured according to the procedures in 6.5 into the "Bending Moment-Deflection Curve Graph". The resulting curve shall be a set of curves that approximate the regression line (linear fitting $y = ax + b$), as shown in Figure 2.

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