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

GB/T 19388-2003

**Test methods of measuring rolling circumference for passenger
car tyres**

(English Translation)

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Table of Contents

Foreword...	3
1 Scope...	4
2 Normative Reference...	4
3 Terms and Definitions...	4
4 Drum Method...	5
5 Test Method of Vehicle Road...	8
6 Test Report...	11

Foreword

This Standard modified and adopted ISO 17269.2000 Passenger Car Tyres - Methods for Measuring Rolling Circumference - Loaded New Tyres (English Version).

This Standard was redrafted according to ISO 17269.2000. Appendix A lists the comparison list of clause numbers between this standard and those of ISO 17269.2000.

When adopting international standards, this Standard has made some modifications based on

China's actual situation and operational needs. Compared with ISO 17269.2000, this Standard

adds Clause 6 "Test Report". The relevant technical differences are marked with a vertical single

line in the margin of the clauses they involve. A list of these technical differences is given in Appendix B for reference.

For ease of use, this Standard has also made the following editorial changes.

- a) Change 'this international standard' into 'this Standard';
 - b) Use the decimal point '.' to replace ',' as a decimal point;
 - c) Delete the foreword of the international standard;
 - d) State directly the content of ISO 4000-1.2000, the reference document of ISO 17269.2000,
- in the text of the standard (see 4.6.1, 4.7, 5.6.2, 5.6.3 of this Edition).

Appendixes A and B of this Standard are informative; while Appendix C is a normative.

This Standard was proposed by the China Petroleum and Chemical Industry Association.

This Standard shall be under the jurisdiction of the National Technical Committee on Tires and

Rim of Standardization Administration of China.

This Standard is entrusted to the National Technical Committee on Tires and Rim of Standardization Administration of China for interpretation.

Drafting organization of this Standard. Beijing Research & Design Institute of Rubber Industry.

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Test Methods of Measuring Rolling Circumference for
Passenger Car Tyres

1 Scope

This Standard specifies two test methods for measuring the rolling circumference and the number of revolutions per unit distance (kilometers) of passenger car tires under load conditions. The first method is the drum method and the second method is the vehicle road method.

This Standard applies to all new passenger car tires.

2 Normative Reference

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 6326 Tyre terms (GB/T 6326-1994, neq ISO 3877-1.1978, ISO 4223.1989)

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 6326 and the following apply.

3.1 Revolutions per unit distance

The number of full and partial revolutions that a tire makes when its (axle) center moves a unit

distance of exactly 1 km. The number of revolutions per kilometer of a tire can be calculated by dividing 1 by the rolling circumference of the tire and multiplying by 106.

3.2 Rolling circumference of tyre; Cr

The distance a tire covers in one complete rotation.

4.1 Principle

The test tire-rim assembly is mounted on the driven shaft, pressed against a drum of a specified

diameter, and a load is applied. The value of the rolling circumference is determined by a specific speed. The number of revolutions of the tire and drum is recorded; and these data are

substituted into the formula to calculate the rolling circumference of the tire.

4.2.1 Diameter

The diameter of the test drum for standard tests shall be 1,700 mm $\pm$ 17 mm. Other test drums

shall have a diameter of at least 1,200 mm, but are not used for inter-laboratory comparative

analysis. The drum shall have the ability to drive a driven wheel so that the tire is fixed and pressurized on the driving drum. Smooth operation shall be observed during measurement.

4.2.2 Surface

The drum surface shall be a smooth steel surface. If a drum with a textured surface is used, this

shall be noted in the test report. The drum surface shall be kept clean.

4.2.3 Width

The width of the drum test surface shall be greater than the tread width of the test tire.

4.3 Thermal environment

The test shall be conducted at a standard room temperature of 25°C. It can also be conducted

in a temperature range of 20°C ~ 30°C without requiring temperature correction.

4.4 Speed

The test speed of the drum shall be 80 km/h.

For radial tires, within the speed range of 80 km/h $\pm$ 50 km/h, it can be assumed that the rolling

circumference of the tire is linearly related to the speed. Within this range, the rolling circumference value at a speed of 80 km/h can be obtained by linear interpolation.

4.5 Accuracy

The minimum number of pulses per revolution (N_i) of the tire and the drum shall be both 10.

The total number of pulses during the measurement shall be greater than 1,000.

4.6 Test tire parameters

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