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# INTERNATIONAL STANDARD



# 3006

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Road vehicles — Passenger car wheels — Test methods

*Véhicules routiers — Roues pour voitures particulières — Méthodes d'essai*

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**Descriptors** : road vehicles, motor vehicles, passenger vehicles, tests, fatigue tests.

## FOREWORD

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3006 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*. This second edition contains an annex which was circulated, in the form of a draft addendum, to the member bodies in October 1975.

This draft addendum was approved by the member bodies of the following countries :

Australia	Japan	Spain
Austria	Korea, Rep. of	Sweden
Belgium	Mexico	Switzerland
Czechoslovakia	Netherlands	Turkey
Germany	New Zealand	U.S.S.R.
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The member body of the following country expressed disapproval of the document on technical grounds :

France

This second edition cancels and replaces the first edition (i.e. ISO 3006-1974), which had been approved by the member bodies of the following countries :

Australia	Iran	Sweden
Austria	Italy	Switzerland
Belgium	Japan	Thailand
Bulgaria	Mexico	Turkey
Canada	Netherlands	United Kingdom
Egypt, Arab Rep. of	Poland	U.S.A.
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The member body of the following country has expressed disapproval of the document on technical grounds :

Czechoslovakia

# Road vehicles — Passenger car wheels — Test methods

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies laboratory test methods for evaluating certain essential characteristics of wheels intended for use on passenger cars. Tests for wheels other than pressed steel wheels will be defined in the future as necessary.

The test procedures are :

- 1) dynamic cornering fatigue;
- 2) dynamic radial fatigue.

## 2 REFERENCE

ISO 3911, *Wheels/rims — Nomenclature, designation, marking, and units of measurement.*

## 3 GENERAL

Only fully processed new wheels which are representative of wheels intended for the vehicle shall be used. No wheel shall be used for more than one test.

## 4 DYNAMIC CORNERING FATIGUE TEST

### 4.1 Equipment

The test machine shall have a driven rotatable device whereby either the wheel rotates under the influence of a stationary bending moment or the wheel is stationary and is subjected to a rotating bending moment.

### 4.2 Procedure

#### 4.2.1 Preparation

The rim flange of the wheel shall be clamped securely to the test fixture. The face of the support of the testing machine shall have the same fixation characteristics as the face of the hub used on the vehicle. If a tyre and wheel assembly is used as a combination for the test, the tyre pressure shall be higher for clamping purposes. The recommended minimum pressure is 375 kPa\*.

The load arm and adaptor assembly shall be attached to the mounting surface of the wheel using non-lubricated studs and nuts (or bolts), in good condition, representative of those used on the vehicle. These wheel nuts (or bolts) shall be tightened at the beginning of the test to the vehicle manufacturer's specified torque values.

Wheel bolts or nuts may be retorqued once during the test. Tightening torque shall not fall below 50 % of its initial value when the minimum load cycle number has been attained. The bending moment shall be maintained with  $\pm 2,5$  %.

#### 4.2.2 Bending moment

To impart a bending moment to the wheel, a force is applied either

- 1) perpendicular, or
- 2) parallel to the plane of the mounting surface of the wheel at a specified distance (moment arm).

### 4.3 Bending moment determination

The bending moment  $M$  (force  $\times$  moment arm), in newton metres, is determined from the formula

$$M = (R\mu + d) F_{v1} S$$

where

$R$  is the static loaded radius, in metres, of the largest tyre to be used on the wheel as specified by the vehicle manufacturer;

$\mu$  is the assumed coefficient of friction developed between tyre and road;

$d$  is the inset or outset of the wheel, in metres (see ISO 3911);

$F_{v1}$  is half of the maximum vertical static load, in newtons, on the front axle;

$S$  is the accelerated test factor.

NOTE — For values of  $\mu$  and  $S$ , see annex.

\* 100 kPa = 1 bar