
**Motorcycles — Light-alloy wheels —
Test method**

Motorcycles — Roues en alliages légers — Méthodes d'essai

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8644 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 22, *Motorcycles*.

This second edition cancels and replaces the first edition (ISO 8644:1988), which has been technically revised.

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Introduction

It is recognized that there are three types of somewhat different equipment for radial impact testing. Application of any of the types of test equipment is effective in this International Standard.

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Motorcycles — Light-alloy wheels — Test method

1 Scope

This International Standard specifies methods for determining the performance of light-alloy road wheels for motorcycles under normal road use.

This International Standard is applicable to wheels for motorcycles with two or three wheels (including motorcycles equipped with side-cars) as defined in ISO 3833, of the following types:

- unit construction light-alloy wheels; and
- composite construction light-alloy wheels.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3833, *Road vehicles — Types — Terms and definitions*
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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

unit construction light-alloy wheel

wheel of which rim and spokes, or disc, are manufactured as a single unit

3.2

composite construction light-alloy wheel

wheel of which rim is made of light alloy, and of which support structure of light alloy or other metals is then assembled

3.3

single mass impact test equipment

impact test equipment in which a single striker can be dropped freely

3.4

pendulum impact test equipment

pendulum impact test equipment in which striker can be swung freely

3.5

double mass impact test equipment

impact test equipment in which both main and auxiliary striker weights are joined together with coil springs and can be dropped freely to give a combined force

4 Test

The tests to be carried out shall be the following:

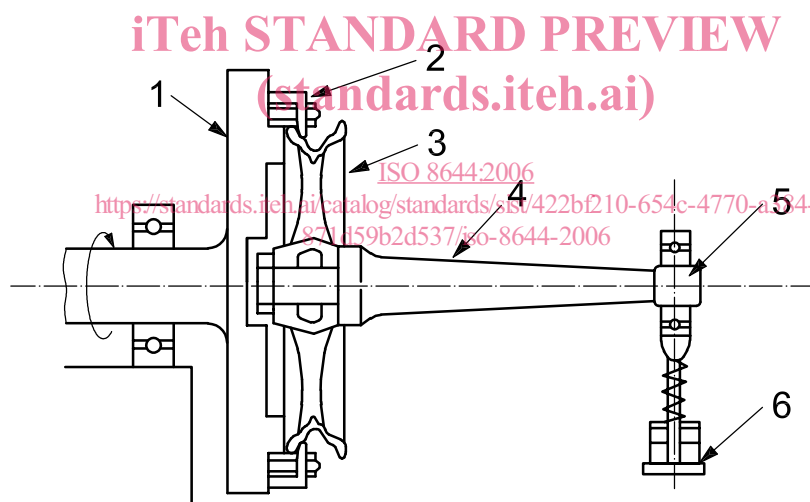
- a) rotational bending fatigue test (see Clause 5);
- b) radial load durability test (see Clause 6);
- c) radial impact resistance test (see Clause 7);
- d) torsional fatigue test (see Clause 8);
- e) air leak test (applicable only to wheels designed and marked for use with tubeless tyres; see Clause 9).

A different wheel may be used for each test.

5 Rotational bending fatigue test

5.1 Test equipment

The test equipment shall be planned to produce a constant bending moment on the centre of the light-alloy wheel which rotates at a constant velocity. An example of such equipment is shown in Figure 1.



Key

- 1 rotary disc
- 2 fastening
- 3 light-alloy wheel
- 4 loading arm
- 5 pivot point
- 6 weight

Figure 1 — Example of equipment for rotational bending fatigue test

5.2 Test conditions

5.2.1 Bending moment

The bending moment, M , in newton metres, applied in accordance with 5.3, shall be determined by the following equation:

$$M = 0,7 \times \mu \times F_v \times R$$

where

μ is the friction coefficient between tyre and road, equal to 0,7;

F_v is the maximum vertical static load on the wheel or the wheel load rating, in newtons, as specified by the vehicle or wheel manufacturer;

R is the maximum static radius, in metres, of the largest applicable tyre, or the tyre specified by the vehicle or wheel manufacturer.

5.2.2 Loading arm length

It is recommended that the length of the loading arm be equal to the radius of the tyre determined in accordance with 5.2.1.

5.3 Test procedure

Rotate the test equipment with the bending moment, M , determined in accordance with 5.2.1, applied after the rim flange of the light-alloy test wheel has been fixed to the driven rotating disc (see Figure 1). A loading arm of sufficient rigidity shall be attached to the wheel by the same method as the wheel is normally attached to the vehicle.

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6 Radial load durability test

6.1 Test equipment

The test equipment, of which Figure 2 shows an example, shall meet the following requirements:

- a) the test equipment shall have a drum, of diameter 400 mm or bigger, with a smooth surface which is wider than the overall width of the tyre used in the test;
- b) the drum specified in a) shall rotate at a constant velocity;
- c) the test equipment shall permit a radial load to be applied to the wheel and shall be such that the wheel is maintained in contact with the drum under constant load.