INTERNATIONAL STANDARD

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Twelveth edition
2021-08

Passenger car tyres and rims —

Part 1: Tyres (metric series)

Pneumatiques et jantes pour voitures particulières —

Partie 1: Pneumatiques (série millimétrique)

Reference number
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Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 3, *Passenger car tyres and rims*.

This twelfth edition of ISO 4000-1 cancels and replaces the eleventh edition (ISO 4000-1:2015), which has been technically revised.

The main changes compared to the previous edition are as follows:

— some definitions have been aligned with ISO 4223-1;

— the text on inflation pressures in Clause 8 has been reworded;

— new internationally harmonized load indices has been added in Annex B.

A list of all parts in the ISO 4000 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Passenger car tyres and rims —

Part 1:
Tyres (metric series)

1 Scope

This document specifies the designation, dimensions, and load ratings of metric-series tyres primarily intended for passenger cars.

2 Normative references

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

ISO 3877-1, *Tyres, valves and tubes — List of equivalent terms — Part 1: Tyres*

ISO 4223-1, *Definitions of some terms used in the tyre industry — Part 1: Pneumatic tyres*

ISO 16992, *Passenger car tyres — Spare unit substitutive equipment (SUSE)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3877-1, ISO 4223-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
rim protector
feature incorporated into the lower sidewall area of the tyre which is intended to protect the rim flange from damage

EXAMPLE Protruding circumferential rubber rib.

4 Designation

4.1 Size and construction

4.1.1 Characteristics

The tyre characteristics shall be designated:

Nominal section width / Nominal aspect ratio Tyre construction code Nominal rim diameter code

EXAMPLE 235/45 R 17.

4.1.2 Nominal section width

The nominal section width of the tyre shall be indicated in millimetres, and this part of the designation shall end in either the numeral of zero or five, so that in any single series of tyres with the same nominal aspect ratio, the values shall all end in 0 or all end in 5.

For sizes mounted on 5° tapered (code-designated) rims, the nominal section width shall end in 5.

4.1.3 Nominal aspect ratio

The nominal aspect ratio (H/S, where H is the design tyre section height and S is the design tyre section width) shall be expressed as a percentage and shall be a multiple of 5.

4.1.4 Tyre construction code

The tyre construction code shall be:

— B for bias-belted construction;

— D for diagonal construction;

— R for radial construction;

— RF for radial run-flat construction (only applicable to run-flat or self-supporting tyres as defined in ISO 16992; radial extended mobility tyres as defined in ISO 16992 shall have the construction code R).

In the case of tyres having a maximum speed capability exceeding 240 km/h, the tyre construction code R can be replaced by ZR and the tyre construction code RF can be replaced by ZRF.

In the case of tyres having a maximum speed capability exceeding 300 km/h, the tyre construction code R shall be replaced by ZR and the tyre construction code RF shall be replaced by ZRF.

Use of any other code-letter (e.g. in the case of a new construction type) should first be submitted to ISO for acceptance.

4.1.5 Nominal rim diameter code

For tyres mounted on 5° tapered (code-designated) rims, the code shall be as given in Table 1.

Table 1 — Nominal rim diameter code

Nominal rim diameter code	Nominal rim diameter D_r mm
10	254
12	305
13	330
14	356
15	381
16	406
17	432
18	457
19	483
20	508
21	533
22	559
23	584
24	610
25	635
26	660
28	711
30	762

In the case of tyres requiring new-concept rims, for safety reasons, especially concerning mounting, the code-number shall be equal to the nominal rim diameter (D_r) expressed as a whole number in millimetres.

4.2 Service description

4.2.1 General

The service description shall be:

Load index Speed symbol

In the case of tyres having a maximum speed capability exceeding 300 km/h, the speed symbol Y and the load index shall be both placed within parentheses, to identify performance up to 300 km/h.

EXAMPLE 235/45 ZR 17 (97Y).

For maximum speed capability and load carrying capacity of the tyre over 300 km/h, consult the manufacturer.

4.2.2 Load index

The maximum tyre load-carrying capacity corresponding to the service conditions specified by the tyre manufacturer shall be indicated by a load index taken from Table 2, per tyre for a single mounting.

4.2.3 Speed symbol

Alpha or alpha-numeric code which indicates the speed category (4.2.4) of the tyre.