International Standard

ISO 4223-1

Tyre industry — Vocabulary —

Part 1: Pneumatic tyres

Industrie du pneumatique — Vocabulaire —

Partie 1: Pneumatiques

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Foreword

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*.

This sixth edition cancels and replaces the fifth edition (ISO 4223-1:2017), which has been technically revised.

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The main changes are as follows:

— inclusion of terms that are new to the tyre industry;

— revision of references.

A list of all parts in the ISO 4223 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.

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Tyre industry — Vocabulary —

Part 1: Pneumatic tyres

1 Scope

This document defines terms related to pneumatic tyres, i. e. tyres suitable for containing a gas at a pressure which can be adjusted.

This document specifies the corresponding codes, symbols and values for these tyres.

NOTE For other terms used in this field and their equivalents in other languages, see ISO 3877 (all parts). For terms and definitions relating to wheels and rims, see ISO 3911.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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ISO 3911, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

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

ISO 18805, *Tyre classification — Agricultural, forestry and construction machines*

ISO 19447, *Passenger car tyres — Method for measuring ice grip performance — Loaded new tyres*

3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in ISO 3911 and ISO 18805 and the following apply.

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

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

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

3.1 Terms relating to category of use

3.1.1
normal tyre
tyre intended for use on public streets, roads and highways and that are not marked with “M+S” (or other variations) or severe snow or *special use tyre* (3.1.2) designations

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3.1.2
special use tyre
tyre intended for mixed use both on- and off-road or for other special duty and primarily designed to initiate and control vehicle motion in off-road conditions

Note 1 to entry: Examples of special use tyre designations are *ET* (3.6.1.1.29), *MPT* (3.6.1.1.30), *ML* (3.6.1.1.16), and *POR* (3.6.1.1.31).

3.1.2.1
professional off-road tyre
POR tyre
special use tyre (3.1.2) primarily used for service in severe off-road conditions

3.1.3
snow tyre
mud and snow tyre
tyre whose *tread* (3.4.4) pattern, tread compound or *structure* (3.3.1) is primarily designed to achieve either on snow or on mud or on sand, or both conditions a performance better than that of a *normal tyre* (3.1.1) with regard to its ability to initiate or control vehicle motion

Note 1 to entry: It is identified by a combination of the letters "M" and "S", e. g. M+S, M&S, M.S.

3.1.3.1
ice grip tyre
passenger car *snow tyre* (3.1.3) that is classified as a *severe snow use tyre* (3.1.4) and additionally designed to be used on road surfaces covered with ice

Note 1 to entry: An ice grip tyre shall conform to ISO 19447.

Note 2 to entry: An ice grip tyre that conforms to UN Regulation No. 117[3] shall be marked with the ice grip symbol (see Figure 1):

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Figure 1 — Ice grip symbol (ISO 7000-3964)

3.1.4
severe snow use tyre
tyre for use in severe snow conditions
tyre whose *tread* (3.4.4) pattern, tread compound or *structure* (3.3.1) is specifically designed based on performance testing using ISO 18106 and which is identified by an "Alpine" or "3 Peak Mountain Snow Flake (3PMSF)" symbol

Note 1 to entry: Regional standards and regulatory requirements can apply for dimensions and performance criteria for severe snow use tyres as well as for the placement of the 3 peak mountain snow flake (3PMSF) symbol (see Figure 2).

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Figure 2 — 3 peak mountain snow flake (3PMSF) symbol

3.1.5
temporary-use spare tyre
tyre different from a tyre intended to be fitted to any vehicle for normal driving conditions but intended only for temporary use under restricted driving conditions

3.1.5.1
T-type temporary-use spare tyre
temporary-use spare tyre (3.1.5) designed for use at an inflation pressure higher than those established for standard and *reinforced tyres* (3.8.11)

Note 1 to entry: It is designated with the "T" prefix.

3.1.6
not for highway service tyre
NHS tyre
tyre primarily designed for use outside of public roads, but suitable for temporary or incidental use on public roads and identified with the letters *"NHS"* (3.6.1.1.8)

EXAMPLE Earth-mover, industrial, agricultural equipment and motorcycles tyres can be *not for highway service tyres*.

Note 1 to entry: Motorcycle tyres that are marked with "NHS" shall not be used on public roads.

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3.1.7
traction tyre
<truck and bus tyres> tyre intended to be fitted primarily to the drive axle(s) of a vehicle to maximize force transmission in various circumstances

Note 1 to entry: Traction tyres can be marked with "TRACTION".

3.2 Terms relating to service description

3.2.1
service description
tyre identification, in addition to the *tyre size designation* (3.6.1), which consists of one or two *load indices (LI)* (3.2.1.1) and a *speed symbol (SS)* (3.2.1.2)

Note 1 to entry: When two load indices are used, these indicate the load carrying capacity in single and dual fitment.

EXAMPLE 91H or 121/119S.

3.2.1.1
load index
LI
numerical code which indicates a reference load used to define the load carrying capacity of the tyre, which can depend on operating conditions and tyre type

Note 1 to entry: The standardized load indices and the assigned reference loads are specified in Table A.1.

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3.2.1.2
speed symbol
SS
alpha or alpha-numeric code which indicates the *speed category* (3.2.1.3) of the tyre, which can depend on operating conditions and tyre type

Note 1 to entry: The standardized speed symbols are specified in Table A.2.

3.2.1.3
speed category
maximum speed which the tyre can sustain, expressed by the speed symbol, and which is part of the *service description* (3.2.1)

Note 1 to entry: The speed categories assigned to the standardized speed symbols are specified in Table A.2.

3.2.1.4
additional service description
secondary service description identifying a special type of service at which the tyre is allowed to operate in addition to the main service description

Note 1 to entry: The additional service description shall be marked within a circle and shall be located close to the main service description.

Note 2 to entry: The additional service description shall consist of either one or two *load indices* (3.2.1.1) that are greater than, and a speed symbol that indicates a speed category that is less than, that of the main service description or one or two load indices that are lower than or equal to and a speed symbol that indicates a speed category that is greater than that of the main service description.

3.3 Terms relating to structure

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3.3.1
structure
technical characteristics of the tyre's structure

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3.3.1.1
diagonal structure
bias-ply structure
cross-ply structure
structure (3.3.1) in which the ply *cords* (3.4.5) that extend to the *beads* (3.4.1) are laid at alternate angles of substantially less than 90° to the centreline of the *tread* (3.4.4)

3.3.1.1.1
diagonal tyre
tyre having a *diagonal structure* (3.3.1.1)

3.3.1.2
bias-belted structure
structure (3.3.1) in which the ply *cords* (3.4.5) that extend to the *beads* (3.4.1) are laid at alternate angles of substantially less than 90° to the centreline of the *tread* (3.4.4) and are restricted by a *belt* (3.4.10) comprising one or more layers of substantially inextensible *cord* (3.4.5) material

3.3.1.2.1
bias-belted tyre
tyre having a *bias-belted structure* (3.3.1.2)

3.3.1.3
radial structure
structure (3.3.1) in which the ply *cords* (3.4.5) that extend to the *beads* (3.4.1) are laid at substantially 90° to the centreline of the *tread* (3.4.4) in a zone including most of the *sidewall* (3.4.2) and located outside the *bead* (3.4.1) and the essentially inextensible circumferential *belt* (3.4.10) that stabilizes the *carcass* (3.4.8)

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3.3.1.3.1
radial tyre
tyre having a *radial structure* (3.3.1.3)

3.3.1.3.2
extended radial structure
radial structure (3.3.1.3) in which the ply *cords* (3.4.5) that extend to the *beads* (3.4.1) are not laid substantially at 90° to the centre line of the *tread* (3.4.4) across the complete cross section of the tyre

3.4 Terms relating to main components

3.4.1
bead
part of the tyre shaped to fit the *rim* (3.7.12) and having a core made of one or several essentially inextensible strands with the *plies* (3.4.6) wrapped around the core

3.4.2
sidewall
portion of the tyre between the *tread* (3.4.4) and the *bead* (3.4.1)

3.4.3
sidewall rubber
rubber layer on the *sidewall* (3.4.2) of the tyre and over the *carcass* (3.4.8), which can include ornamental or protective ribs, tyre labelling and markings, and moulded fitting lines

3.4.3.1
rim protector
feature incorporated into the *lowersidewall* (3.4.11) area of the tyre which is intended to protect the *rim* (3.7.12) flange from damage

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3.4.4
tread
part of a tyre which comes into contact with the ground

3.4.5
cord
textile or non-textile strands (threads) used in various components of the tyre *carcass* (3.4.8)

EXAMPLE *Plies* (3.4.6), *belts* (3.4.10), *breakers* (3.4.9).

3.4.6
ply
layer of rubber-coated parallel *cords* (3.4.5)

3.4.7
inner liner
layer of rubber on the inside of the *carcass* (3.4.8) used especially in tubeless tyres to minimize air loss

3.4.8
carcass
part of a tyre other than the *tread* (3.4.4) and the *sidewall rubber* (3.4.3) which, when inflated, bears the load

3.4.9
breaker
<diagonal tyres> intermediate *ply* (3.4.6) not extending to the *bead* (3.4.1)

3.4.10
belt
bracing ply
layer of material underneath the *tread* (3.4.4), laid substantially in the direction of the tread centreline, that restricts the *carcass* (3.4.8) circumferentially

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