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Definitions of some terms used in the tyre industry —

Part 1: Pneumatic tyres

Définitions de certains termes utilisés dans l'industrie du pneumatique —

Partie 1: Pneumatiques

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Contents

Page

Foreword ..... **iv**
1 Scope **1**
2 Normative references **1**
3 Terms, definitions and symbols **1**
Annex A (normative) **Loads, speeds and rim diameters** **13**
Bibliography **20**

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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

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

This fifth edition cancels and replaces the fourth edition (ISO 4223-1:2002), which has been technically revised. It also incorporates the Amendment ISO 4223-1:2002/Amd 1:2011.

A list of all parts in the ISO 4223 series can be found on the ISO website.

Definitions of some terms used in the tyre industry —

Part 1:
Pneumatic tyres

1 Scope

This document defines a number of significant terms related to pneumatic tyres used in the tyre industry, together with corresponding codes, symbols and values.

NOTE 1 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/rims, see ISO 3911.

NOTE 2 Annex A forms a normative part of this document.

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.

ISO 4251-4, *Tyres (ply rating marked series) and rims for agricultural tractors and machines — Part 4: Tyre classification and nomenclature*

3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in ISO 4251-4 and the following apply.

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

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

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

3.1 Terms relating to category of use

3.1.1
normal tyre
tyre intended for highway (or public highway) use which does not require “M+S” (or other variations) or severe snow or *special use* (3.1.2) tyre designations

Note 1 to entry: Examples of special use tyre designations are MPT, *ML* (3.7.1.1.16), POR.

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

3.1.3
snow tyre
tyre whose *tread* (3.5.4) pattern, tread compound or *structure* (3.4.1) is primarily designed to achieve in winter conditions, e.g. snow, a performance better than that of a *normal tyre* (3.1.1) with regard to its ability to initiate or maintain vehicle motion

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

3.1.4
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
severe snow use tyre
tyre whose *tread* (3.5.4) pattern, tread compound or *structure* (3.4.1) 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: Refer to regional standards and regulatory requirements for dimensions and performance criteria, placement adjacent to "M+S" and characterized by the 3 Peak Mountain Snow Flake (3PMSF) symbol (see Figure 1).

Figure 1 — 3 Peak Mountain Snow Flake (3PMSF) symbol

3.1.6
professional off-road
POR
special use (3.1.2) tyre primarily used for service in severe off-road conditions

3.1.7
not for highway service
NHS
tyre primarily designed for use outside of public roads, but suitable for temporary/incidental use on public roads and identified with the letters "*NHS*" (3.7.1.1.8)

3.1.8
traction tyre
tyre that may have the inscription "TRACTION" and intended to be fitted primarily to the drive axle(s) of a vehicle to maximize force transmission in various circumstances

3.2 Terms relating to service description

3.2.1
service description
tyre identification, in addition to the *tyre size designation* (3.7.1), which consists of a *load index (LI)* (3.2.1.1) (or two load indices in the case of single/dual fitments) and a *speed symbol (SS)* (3.2.1.2)

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: See Table A.1.

3.2.1.2
speed symbol
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: See 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: See Table A.2 for speed symbols.

3.3 Other general terms and definitions

3.3.1
cold inflation pressure
internal pressure of the tyre at ambient temperature and not including any pressure build-up due to tyre usage

Note 1 to entry: It is expressed in kilopascals (kPa).

3.3.2
grown tyre
tyre that has undergone expansion due to use in service

3.3.3
new tyre
tyre that has not been used and is not a *retread tyre* (3.3.11)

3.3.4
rolling circumference
C_r
distance the centre of the tyre (axle) moves in one revolution of the tyre under specified conditions

3.3.5
rolling resistance
F_r
loss of energy (or energy consumed) per unit of distance

Note 1 to entry: The SI unit conventionally used for the rolling resistance is the newton metre per metre (N·m/m). This is equivalent to the drag force in newtons (N).

3.3.6
tyre contact area
A_c
area of the flat surface contained within the *virtual perimeter* (3.3.8) of the tyre footprint

Note 1 to entry: It is expressed in square metres (m^2).

3.3.7
tyre ground pressure
F/A_c
average unit load transmitted by the tyre through its contact area to the road surface, expressed, in kilonewtons per square metre (kN/m^2), as the ratio between the vertical force, *F*, in static conditions on the axis of the *wheel* (3.8.14) and the *tyre contact area* (3.3.6), A_c, and measured with the tyre inflated at the *cold inflation pressure* (3.3.1) recommended for the intended type of service

3.3.8
virtual perimeter
<tyre footprint> convex polygonal curve circumscribing the smallest area containing all points of contact between the tyre and ground

3.3.9
capped inflation
process of inflating the tyre to the required cold pressure and allowing the inflation pressure to build up, as the tyre is warmed up while running

3.3.10
regulated inflation
process of inflating the tyre to the required cold pressure and allowing the inflation pressure to change to the required level as the tyre runs under load

Note 1 to entry: This is most commonly done by using a regulated pressure source attached to the tyre through a rotating union.

3.3.11
retread tyre
used tyre that has been reconditioned to extend the useful life of the tyre with the replacement of the tread rubber only or replacement of *tread* (3.5.4) and *sidewall rubbers* (3.5.3)

Note 1 to entry: It covers the following process methods:

— "Top capping" – replacement of the tread.

— "Re-capping" – replacement of the tread and with the new material extending over part of the *sidewall* (3.5.2).

— "Bead to bead" – replacement of the tread and sidewall rubber including all or part of the lower area of the tyre.

3.3.12
rolling resistance coefficient
ratio of the *rolling resistance* (3.3.5), in newtons, to the load on the tyre, in kilonewtons

Note 1 to entry: This quantity is dimensionless.

3.3.13
tyre strength indicator
star marking (one, two, three, etc.), *ply* (3.5.6) rating (number), or load range (letter) used as an indication of tyre strength

3.3.14
test pressure
pressure to which the mounted pneumatic tyre is measured subject to a specific test

3.3.15
mud and snow tyre
type of tyre designed to achieve snow traction and mud and sand performance better than that of a *normal tyre* (3.1.1) with regard to its ability to initiate or maintain vehicle motion

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

3.3.16
T-type temporary-use spare tyre
temporary-use spare tyre (3.1.4) designed for use at an inflation pressure higher than those established for standard and *reinforced tyres* (3.3.17)

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

3.3.17
reinforced tyre
extra load tyre
description of passenger car and motorcycle tyres designed for loads and minimum reference inflation pressures higher than those of the standard version

3.3.18
run flat tyre
tyre designed to operate in an inflated mode and capable of running at least a specified distance under prescribed conditions in the event that the tyre does not hold air

3.4 Terms relating to structure

3.4.1
structure
technical characteristics of the tyre's *carcass* (3.5.8)

EXAMPLE *Diagonal* (3.4.1.1) (bias-ply), *bias-belted* (3.4.1.2), *radial* (3.4.1.3).

3.4.1.1
diagonal
bias-ply
cross-ply
structure (3.4.1) in which the ply *cords* (3.5.5) extend to the *bead* (3.5.1) and are laid at alternate angles of substantially less than 90° to the centreline of the *tread* (3.5.4)

3.4.1.2
bias-belted
structure (3.4.1) of *diagonal* (3.4.1.1) (bias-ply) type in which the *carcass* (3.5.8) is restricted by a *belt* (3.5.10) comprising one or more layers of substantially inextensible *cord* (3.5.5) material

3.4.1.3
radial
structure (3.4.1) in which the ply *cords* (3.5.5) that extend to the *beads* (3.5.1) are laid at substantially 90° to the centreline of the *tread* (3.5.4), the *carcass* (3.5.8) being restrained by circumferential *belts* (3.5.10) of two or more layers of substantially inextensible cord material

3.5 Terms relating to main components

3.5.1
bead
part of the tyre shaped to fit the *rim* (3.8.12) and having a core made of one or several essentially inextensible strands with the plies wrapped around the core

3.5.2
sidewall
portion of the tyre between the *tread* (3.5.4) and the *bead* (3.5.1)

3.5.3
sidewall rubber
rubber layer on the *sidewall* (3.5.2) of the tyre and over the *carcass* (3.5.8), which may include ornamental or protective ribs, tire labelling and markings, and moulded fitting lines

3.5.3.1
rim protector
feature incorporated into the *lower sidewall* (3.5.11) area of the tyre which is intended to protect the *rim* (3.8.12) flange from damage

3.5.4
tread
part of a tyre which comes into contact with the ground

3.5.5
cord
textile or non-textile strands (threads) used in various components of the tyre *carcass* (3.5.8)

EXAMPLE Plies, *belts* (3.5.10), *breakers* (3.5.9), etc.

3.5.6
ply
layer of rubber-coated parallel *cords* (3.5.5)

3.5.7
inner liner
layer of rubber on the inside of the *carcass* (3.5.8) used especially in tubeless tyres to minimize air loss

3.5.8
carcass
part of a tyre other than the *tread* (3.5.4) and the *sidewall rubber* (3.5.3) which, when inflated, bears the load

3.5.9
breaker (diagonal)
intermediate *ply* (3.5.6) not extending to the *bead* (3.5.1)

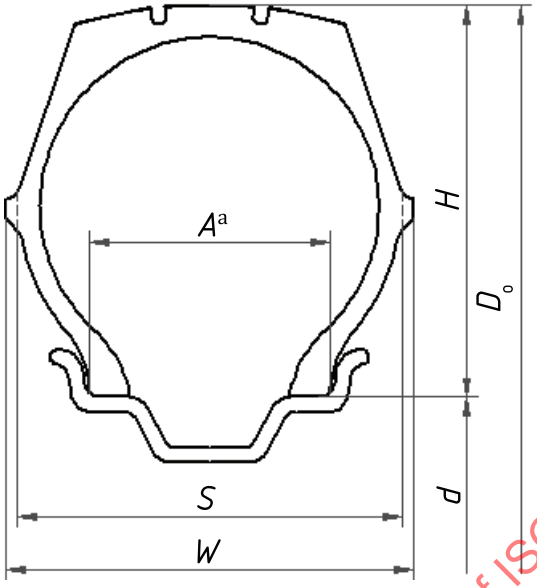
3.5.10
belt
bracing ply
layer of material underneath the *tread* (3.5.4), laid substantially in the direction of the tread centreline, that restricts the *carcass* (3.5.8) circumferentially

3.5.11
lower sidewall
area below the line of maximum *section width* (3.6.1) of the tyre, visible when the tyre, fitted to a *rim* (3.8.12), is viewed from the side

3.5.12
tread groove
space between the adjacent ribs or blocks in the *tread* (3.5.4) pattern

3.5.13
tread wear indicator
projection within the *tread grooves* (3.5.12) designed to give a visual indication of the degree of wear of the *tread* (3.5.4)

3.6 Terms relating to dimensions (see Figure 2)



[a] Specified rim width.

Figure 2 — Dimensions

3.6.1
section width
S
linear distance between the outside of the *sidewalls* (3.5.2) of an inflated pneumatic tyre, when fitted on a *measuring rim* (3.8.10), excluding elevations due to labelling (markings), decorations, protective bands or ribs, or *rim protector* (3.5.3.1)

3.6.2
overall width
W
linear distance between the outsides of the side walls of an inflated pneumatic tyre, when fitted on a *measuring rim* (3.8.10), including labelling (marking), decoration, protective bands or ribs, and *rim protector* (3.5.3.1), and in the case of tyres where the *tread* (3.5.4) is wider than the *section width* (3.6.1), the overall width corresponds to the tread width

3.6.3
maximum overall tyre width in service
overall width (3.6.2) plus

a) manufacturing tolerances, and

b) tolerance for service growth

3.6.4
section height
H
half the difference between the *overall diameter* (3.6.5) and the *nominal rim diameter* (3.6.9)

3.6.5
overall diameter
D_o
diameter of an inflated pneumatic tyre, when fitted on a *measuring rim* (3.8.10), at the outermost surface of the *tread* (3.5.4), applying to new tires or newly retreaded tyres

3.6.6
static maximum overall tyre diameter in service
D_{os}
overall diameter (3.6.5) plus

a) manufacturing tolerances, and

b) tolerance for service growth

3.6.7
dynamic maximum overall tyre diameter in service
D_{od}
overall diameter (3.6.5) plus

a) manufacturing tolerances,

b) tolerance for service growth, and

c) allowance for dimensional changes due to centrifugal force

Note 1 to entry: This definition applies only to motorcycle tyres; the allowance in c) is to be taken into account by the motorcycle manufacturer when designing for tyre clearances.

3.6.8
nominal aspect ratio
H/S
ratio of the tyre [on its theoretical *rim* (3.8.12)] nominal *section height* (3.6.4) to the *nominal section width* (3.6.10) multiplied by 100

3.6.9
nominal rim diameter
D_r
conventional number corresponding to the diameter of the *rim* (3.8.12) expressed either as a size code (number less than 100) or in millimetres (number greater than 100), but not as both

Note 1 to entry: See Tables A.3 and A.4.

3.6.10
nominal section width
SN
section width (3.6.1) indicated in the *tyre size designation* (3.7.1), and used for calculation of tyre dimensions

Note 1 to entry: Regional tire standards have used "S_N" or "sN".

3.7 Terms, definitions and symbols of designation

3.7.1
tyre size designation
designation showing:

— the *nominal section width* (3.6.10);

— the *nominal aspect ratio* (3.6.8);

— indication of the *structure* (3.4.1) placed in front of the *nominal rim diameter* (3.6.9) marking, as follows:

  — *diagonal* (3.4.1.1) (bias-ply) tyres: the symbol "-" or the letter "D";

  — radial-ply tyres: the letter "R";

— *bias-belted* (3.4.1.2) tyres: the letter "B";

— a conventional number denoting the nominal rim diameter and corresponding to its diameter expressed either by codes (numbers below 100) or in millimetres (numbers above 100)

Note 1 to entry: Additional indications, letters, groups of letters and numbers can be part of the tyre size designation depending on the tyre class and category of use.

EXAMPLE 165/80R15, 24.00-25 NHS.

3.7.1.1
additional tyre designation
additional letter or symbol that may also be part of the *tyre size designation* (3.7.1), identifying, for example, the type of tyre

3.7.1.1.1
T
letter placed immediately in front of the *nominal section width* (3.6.10) to identify a *T-type temporary-use spare tyre* (3.3.16)

3.7.1.1.2
P
letter (optional) placed immediately in front of the *nominal section width* (3.6.10) to identify a passenger car tyre

3.7.1.1.3
IN
letters (optional) placed immediately in front of the *nominal section width* (3.6.10) to identify an industrial tyre

3.7.1.1.4
IMP
IMPLEMENT
letters identifying implement tyres

Note 1 to entry: As an alternative to marking with agricultural implement tyre code I, in accordance with ISO 4251-4.

3.7.1.1.5
LT
letters (as used by the regional professional standards) placed immediately in front of the *nominal section width* (3.6.10) or after the *rim* (3.8.12) diameter code of the tire size designation and consistent with the regional professional standards for *service descriptions* (3.2.1)

Note 1 to entry: Examples of service descriptions are load indices and *speed symbols* (3.2.1.2).

3.7.1.1.6
C
letter placed immediately after the *rim* (3.8.12) diameter code to identify tyres for light duty trucks and consistent with the regional professional standards for *service descriptions* (3.2.1)

Note 1 to entry: Examples of service descriptions are load indices and *speed symbols* (3.2.1.2).

3.7.1.1.7
CP
letters (optional) placed immediately after the *rim* (3.8.12) diameter code to identify commercial vehicle tyres for service on motor-caravans

3.7.1.1.8
NHS
letters placed immediately after the *rim* (3.8.12) diameter code to identify tyres primarily designed for use outside of public roads, but suitable for temporary/incidental use on public roads

EXAMPLE Earthmover, industrial, agricultural equipment and motorcycles *not for highway service* (3.1.7).

3.7.1.1.9
AT
letters identifying tires used on all-terrain vehicles

3.7.1.1.10
DH
letters identifying tires used on agricultural and logging service vehicles which must be mounted on a DH drop centre *rim* (3.8.12)

3.7.1.1.11
VA
letters identifying tires used on agricultural and logging service vehicles which must be mounted on a VA drop centre *rim* (3.8.12)

3.7.1.1.12
ST
letters identifying special tires for trailers in highway service

3.7.1.1.13
IF
letters identifying an agricultural tire to operate at 20 % higher rated load than standard tires at the same inflation pressure

3.7.1.1.14
VF
letters identifying an agricultural tire to operate at 40 % higher rated load than standard tires at the same inflation pressure

3.7.1.1.15
TR
letters identifying tires for service on trucks, buses and other vehicles with *rims* (3.8.12) having specified rim diameter of nominal +0.156 inch (3,96 mm) or +0.250 inch (6,35 mm)

3.7.1.1.16
ML
letters identifying mining and logging tires used in intermittent highway service

3.7.1.1.17
MH
letters identifying tires used on mobile homes

3.7.1.1.18
HC
letters identifying a 17,5 *rim* (3.8.12) diameter code tire for use on low platform trailers

3.7.1.1.19
DT
letters identifying off-the-road tires designed for sand and paver service

3.7.1.1.20
TG
letters identifying off-the-road tires used on *rims* (3.8.12) having *bead* (3.5.1) seats with nominal diameter +0.188 inch (4,77 mm)

3.7.1.1.21
K
letter identifying off-the-road compactor tire for use on 5° drop centre or semi-drop centre *rims* (3.8.12) having *bead* (3.5.1) seats with nominal diameter −0.032 inch (0,81 mm)

3.7.1.1.22
IND
letters identifying agricultural drive *wheel* (3.8.14) tire used in industrial service

3.7.1.1.23
SL
letters identifying tires with service limited to agricultural usage

3.7.1.1.24
FI
letters identifying implement tires for agricultural towed highway service

3.7.1.1.25
SS
letters identifying industrial tires for off-highway vehicles such as mini and skid-steer loaders

3.7.1.1.26
M/C
letters identifying tires used for motorcycles

3.8 Terms relating to tyre testing

3.8.1
bead separation
breakdown of bond between components in the *bead* (3.5.1) area

3.8.2
belt separation
parting of rubber compound between belt layers or between *belts* (3.5.10) and plies

3.8.3
chunking
breaking away of pieces of rubber from the *tread* (3.5.4)

3.8.4
cord separation
parting of the *cords* (3.5.5) from their rubber coating

3.8.5
cracking
any parting within the *tread* (3.5.4), *sidewall* (3.5.2) or *inner liner* (3.5.7) of the tyre that may extend to *cord* (3.5.5) material

3.8.6
inner liner separation
parting of *inner liner* (3.5.7) from *cord* (3.5.5) material in the *carcass* (3.5.8)

3.8.7
ply separation
parting of adjacent plies

3.8.8
test rim
rim (3.8.12) on which the pneumatic tyre is fitted for specific testing and, unless specified otherwise, approved or recommended or permitted in one of the regional tyre standards for a tyre of that size designation and type

3.8.9
tread separation
pulling away of the *tread* (3.5.4) from the *carcass* (3.5.8)

3.8.10
measuring rim
rim (3.8.12) on which a tyre is required to be fitted for dimensional measurements

3.8.11
open splice
any parting at any junction of *tread* (3.5.4), *sidewall* (3.5.2) or *inner liner* (3.5.7) that may extend to *cord* (3.5.5) material

3.8.12
rim
part of the *wheel* (3.8.14) on which the tyre is mounted and supported

3.8.13
sidewall separation
parting of the rubber compound from the *cord* (3.5.5) material in the *sidewall* (3.5.2)

3.8.14
wheel
rotating load-carrying member between the tyre and the axle, usually consisting of two major parts, the *rim* (3.8.12) and the wheel disc, which may be integral, permanently attached or detachable

Annex A
(normative)

Loads, speeds and rim diameters

Table A.1 — Load indices (LI) and corresponding loads

LI	kg	LI	kg	LI	kg	LI	kg
0	45	30	106	60	250	90	600
1	46,2	31	109	61	257	91	615
2	47,5	32	112	62	265	92	630
3	48,7	33	115	63	272	93	650
4	50	34	118	64	280	94	670
5	51,5	35	121	65	290	95	690
6	53	36	125	66	300	96	710
7	54,5	37	128	67	307	97	730
8	56	38	132	68	315	98	750
9	58	39	136	69	325	99	775
10	60	40	140	70	335	100	800
11	61,5	41	145	71	345	101	825
12	63	42	150	72	355	102	850
13	65	43	155	73	365	103	875
14	67	44	160	74	375	104	900
15	69	45	165	75	387	105	925
16	71	46	170	76	400	106	950
17	73	47	175	77	412	107	975
18	75	48	180	78	425	108	1 000
19	77,5	49	185	79	437	109	1 030
20	80	50	190	80	450	110	1 060
21	82,5	51	195	81	462	111	1 090
22	85	52	200	82	475	112	1 120
23	87,5	53	206	83	487	113	1 150
24	90	54	212	84	500	114	1 180
25	92,5	55	218	85	515	115	1 215
26	95	56	224	86	530	116	1 250
27	97,5	57	230	87	545	117	1 285
28	100	58	236	88	560	118	1 320
29	103	59	243	89	580	119	1 360

Table A.1 *(continued)*

LI	kg	LI	kg	LI	kg	LI	kg
120	1 400	150	3 350	180	8 000	210	19 000
121	1 450	151	3 450	181	8 250	211	19 500
122	1 500	152	3 550	182	8 500	212	20 000
123	1 550	153	3 650	183	8 750	213	20 600
124	1 600	154	3 750	184	9 000	214	21 200
125	1 650	155	3 875	185	9 250	215	21 800
126	1 700	156	4 000	186	9 500	216	22 400
127	1 750	157	4 125	187	9 750	217	23 000
128	1 800	158	4 250	188	10 000	218	23 600
129	1 850	159	4 375	189	10 300	219	24 300
130	1 900	160	4 500	190	10 600	220	25 000
131	1 950	161	4 625	191	10 900	221	25 750
132	2 000	162	4 750	192	11 200	222	26 500
133	2 060	163	4 875	193	11 500	223	27 250
134	2 120	164	5 000	194	11 800	224	28 000
135	2 180	165	5 150	195	12 150	225	29 000
136	2 240	166	5 300	196	12 500	226	30 000
137	2 300	167	5 450	197	12 850	227	30 750
138	2 360	168	5 600	198	13 200	228	31 500
139	2 430	169	5 800	199	13 600	229	32 500
140	2 500	170	6 000	200	14 000	230	33 500
141	2 575	171	6 150	201	14 500	231	34 500
142	2 650	172	6 300	202	15 000	232	35 500
143	2 725	173	6 500	203	15 500	233	36 500
144	2 800	174	6 700	204	16 000	234	37 500
145	2 900	175	6 900	205	16 500	235	38 750
146	3 000	176	7 100	206	17 000	236	40 000
147	3 075	177	7 300	207	17 500	237	41 250
148	3 150	178	7 500	208	18 000	238	42 500
149	3 250	179	7 750	209	18 500	239	43 750

Table A.1 *(continued)*

LI	kg	LI	kg	LI	kg	LI	kg
240	45 000	260	80 000	280	140 000	300	250 000
241	46 250	261	82 500	281	145 000	301	257 500
242	47 500	262	85 000	282	150 000	302	265 000
243	48 750	263	87 500	283	155 000	303	272 500
244	50 000	264	90 000	284	160 000		
245	51 500	265	92 500	285	165 000		
246	53 000	266	95 000	286	170 000		
247	54 500	267	97 500	287	175 000		
248	56 000	268	100 000	288	180 000		
249	58 000	269	103 000	289	185 000		
250	60 000	270	106 000	290	190 000		
251	61 500	271	109 000	291	195 000		
252	63 000	272	112 000	292	200 000		
253	65 000	273	115 000	293	206 000		
254	67 000	274	118 000	294	212 000		
255	69 000	275	121 500	295	218 000		
256	71 000	276	125 000	296	224 000		
257	73 000	277	128 500	297	230 000		
258	75 000	278	132 000	298	236 000		
259	77 500	279	136 000	299	243 000		

Table A.2 — Speed symbols and corresponding speeds

Speed symbol	Speed category km/h
A1	5
A2	10
A3	15
A4	20
A5	25
A6	30
A7	35
A8	40
B	50
C	60
D	65
E	70
F	80
G	90
J	100
K	110
L	120
M	130
N	140
P	150

Table A.2 *(continued)*

Speed symbol	Speed category km/h
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
W	270
Y	300

Table A.3 — Nominal rim diameters

Nominal rim diameter D_r	
Code	mm[a]
5 degree rims	
4	102
5	127
6	152
7	178
8	203
9	229
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
27	686
28	711
29	737
30	762

[a] These are theoretical values to be used only for the calculation of the tyre overall diameters.