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Truck and bus tyres and rims (metric series) —

Part 1: **Tyres**

Pneumatiques et jantes (séries millimétriques) pour camions et autobus —

Partie 1: Pneumatiques

Reference number
ISO 4209-1:2001(E)

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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 3.

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 part of ISO 4209 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 4209-1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 4, *Truck and bus tyres and rims*.

This sixth edition cancels and replaces the fifth edition (ISO 4209-1:1993), which has been technically revised.

ISO 4209 consists of the following parts, under the general title *Truck and bus tyres and rims (metric series)*:

— *Part 1: Tyres*

— *Part 2: Rims*

Annexes A, B and C of this part of ISO 4209 are for information only.

Truck and bus tyres and rims (metric series) —

Part 1:
Tyres

1 Scope

This part of ISO 4209 specifies the designation, dimensions and load ratings of the metric series of tyres primarily intended for trucks and buses.

It is applicable to bias-belted, diagonal and radial tyres for trucks and buses, mounted on 5° tapered rims and on 15° tapered (drop-centre) rims.

It is also applicable to different concepts and types of tyres and rims; in these cases, however, appropriate rim/section ratios K_1, K_4, coefficients K_2, K_3, C_R and construction codes have been added to Tables 3, 4 and 5.

ISO 4209-2 deals with requirements for rims.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 4209. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 4209 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

3 Terms and definitions

For the purposes of this part of ISO 4209, the terms and definitions given in ISO 4223-1 apply.

4 Tyre designation

4.1 Content

The designation of the tyre shall be shown on its sidewall and shall include the following markings, to be shown close to each other:

— size and construction (see 4.2);

— service condition characteristics (see 4.3).

1) To be published. (Revision of ISO 4223-1:1989)

4.2 Size and construction

4.2.1 Marking

The size and construction characteristics shall be indicated as follows:

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

4.2.2 Nominal section width

The nominal section width shall be expressed in millimetres.

For tyres fitted to 5° taper rims and for tyres fitted to 15° taper rims, the nominal tyre section width shall end in 5.

4.2.3 Nominal aspect ratio

The nominal aspect ratio shall be expressed as a percentage and shall be a multiple of 5.

4.2.4 Tyre construction code

The tyre construction code shall be as follows:

B for bias-belted construction;

D, or – , for diagonal/bias construction;

R for radial construction.

NOTE Other codes will be established for new tyre concepts (constructions).

4.2.5 Nominal rim diameter

The nominal rim diameter for 5° tapered bead seat rims and for 15° tapered bead seat (drop-centre) rims shall be expressed by a code (see Table 1 for code correlation).

NOTE 15° tapered rims are to be used only for tyres with load index 122 and larger.

However, it shall be expressed in millimetres for new and future concepts where the mounting of existing tyres on new concept rims or of new concept tyres on existing rims would be incompatible.

4.3 Service condition characteristics

4.3.1 Marking

The characteristics shall be indicated as follows:

Load index single ⁄ Load index dual Speed symbol

4.3.2 Load index

The load index is a numerical code associated with the maximum load a tyre can carry at the speed indicated by its speed symbol under the service conditions specified by the tyre manufacturer. See Table 6.

4.3.3 Speed symbol

The speed symbol indicates the speed at which the tyre can carry the load corresponding to its load index under the service conditions specified by the tyre manufacturer. See Table 7.

4.4 Other service characteristics

4.4.1 In the case of tubeless tyres, the marking “TUBELESS” shall be shown on the tyre.

4.4.2 In the case of a preferred direction of rotation of the tyre, an arrow shall be used to indicate that direction.

4.4.3 In the case of special tread tyres (see Table 3), the symbol “ET” shall be shown on the tyre.

4.5 Example

A tyre having

a) a size and construction of:

- nominal section width 275 mm,
- nominal aspect ratio 70 %,
- radial construction,
- nominal rim diameter code 22.5;

b) service condition characteristics of:

- single load 2 500 kg,
- dual load 2 300 kg,
- reference speed 130 km/h;

c) other service characteristics:

- tubeless,
- special tread;

shall be marked:

275/70 R 22.5	140/137 M	TUBELESS ET

5 Tyre dimensions

5.1 Calculation of "design" tyre dimensions

5.1.1 Coefficients

For the choice of coefficients K_1 (theoretical rim/section ratio), K_2 and K_4 (measuring rim/section ratio), see Tables 3 and 4.

5.1.2 Theoretical rim width, R_{th}

The theoretical rim width, R_{th}, is equal to the product of the nominal section width, S_N, and the theoretical rim/section ratio, K_1:

$$R_{th} = K_1 S_N$$

5.1.3 Measuring rim width, R_m

The measuring rim width, R_m, is equal to the product of the nominal section width, S_N, and the coefficient, K_4:

$$R_m = K_4 S_N$$

rounded to the nearest standardized rim width (see Table 2).

5.1.4 Design tyre section width, S

The design tyre section width, S, is the nominal section width, S_N, transferred from the theoretical rim, R_{th} to the measuring rim, R_m:

$$S = S_N + K_2 (R_m - R_{th})$$

rounded to the nearest whole number.

5.1.5 Design tyre section height, H

The design tyre section height, H, is equal to the product of the nominal section width, S_N, and the nominal aspect ratio, H/S (H/S expressed as a percentage):

$$H = S_N \frac{H/S}{100}$$

rounded to the nearest whole number.

5.1.6 Design tyre overall diameter, D_o

The design tyre overall diameter, D_o, is the sum of the nominal rim diameter, D_r, plus twice the design tyre section height, H:

$$D_o = D_r + 2H$$

For tyres using a nominal rim diameter code, see Table 1 for the value of D_r to be used.

5.1.7 Values

The relevant dimensions (measuring rim width, design section width and design section height) are shown in annexes A and B. For tyres of a given series, with a nominal tyre section over 205, it is recommended that they be in increments larger than 10.

5.2 Calculation of "maximum overall tyre dimensions in service"

These calculations are for use by vehicle manufacturers in designing for tyre clearances.

5.2.1 Maximum overall width in service, W_{max}

The maximum overall width in service, W_{max}, is equal to the product of the design tyre section width, S, and the appropriate coefficient, a (see Table 3):

$$W_{max} = Sa$$

It includes protective ribs, lettering, embellishments, manufacturing tolerances and growth due to service.

5.2.2 Maximum overall diameter in service, $D_{o,max}$

The maximum overall diameter in service, $D_{o,max}$, is equal to the nominal rim diameter, D_r (see Table 1), plus twice the product of the design tyre section height, H, and the appropriate coefficient, b (see Table 3):

$$D_{o,max} = D_r + 2Hb$$

It includes manufacturing tolerances, the different types of tread patterns and growth due to service.

5.3 Minimum dual spacing (MDS)

5.3.1 The minimum dual spacing is a guideline value equal to the product of the design tyre section width, S, and the appropriate coefficient, K_3 (see Table 4):

$$MDS = SK_3$$

It is referred to a tyre load according to the load index, in dual application shown in the service characteristics on the tyre at an inflation pressure applicable for normal highway service.

5.3.2 The design tyre section width, S, will change 2,5 mm for each 0.25 change in rim width code. The minimum dual spacing shall be adjusted accordingly.

Table 1 — Nominal rim diameter codes

Code		Nominal rim diameter
5° tapered rims	15° tapered (drop-centre) rims	D_r mm
10	—	254
12	—	305
13	—	330
14	—	356
15	—	381
16	—	406
17	—	432
—	17.5	445
18	—	457
—	19.5	495
20	—	508
—	20.5	521
22	—	559
—	22.5	572
24	—	610
—	24.5	622

Table 2 — Rim width codes

Code		Rim width
5° tapered rims	15° tapered (drop-centre) rims	mm
3.00	—	76
3.50	—	89
4.00	—	101,5
4.50	—	114,5
5.00	—	127
—	5.25	133,5
5.50	—	139,5
6.00	6.00	152,5
6.50	—	165
—	6.75	171,5
7.00	—	178
7.50	7.50	190,5
8.00	—	203
—	8.25	209,5
8.50	—	216
9.00	9.00	228,5
9.50	—	241,5
—	9.75	247,5
10.00	—	254
10.50	10.50	266,5
11.00	—	279.5
—	11.75	298,5
12.00	—	305
—	12.25	311
13.00	13.00	330
14.00	14.00	355,5
15.00	15.00	381
—	16.00	406,5
—	17.00	432
—	18.00	457

Table 3 — Coefficients K_2, b, a for calculation of tyre dimensions

Structure	Tyre construction code	Coefficients		
		K_2	b [a]	a
Bias-belted	B	0,4	1,07	1,08
Diagonal	D	0,4	1,07	1,08
Radial	R	0,4	1,04	1,05
[a] For special tread tyres (see 4.4.3): Bias-belted: b = 1,09 Diagonal: b = 1,09 Radial: b = 1,06				
NOTE Other factors may be established for new tyre concepts (constructions).				

Table 4 — Coefficients K_1, K_3, K_4 for calculation of tyre dimensions

Tyre construction code	Type of rim	Nominal aspect ratio H/S	Theoretical rim/section ratio K_1	Minimum dual spacing K_3	Measuring rim/section ratio K_4
B, D, R	5° tapered	100 to 75	0,70	1,15	0,70
		70 and 65	0,70	1,15	0,75
		60	0,70	1,15	0,75
		55	0,70	1,15	0,80
		50 [a]	0,70	1,15	0,80
	15° tapered (drop-centre)	90 to 65	0,75	1,125	0,75
		60	0,80	1,125	0,80
		55	0,80	1,125	0,80
		50	0,80	—	0,80
		45 [a]	0,85	—	0,85
[a] For H/S lower than 50 or 45 respectively, further coefficients will be established.					
NOTE Other factors may be established for new tyre concepts (constructions).					

5.4 Approved rim widths

The range of approved rim widths, in millimetres, is determined, for each nominal section width, by multiplying the nominal section width, S_N, by the coefficients, C_R, presented in Table 5, i.e.

— minimum rim width: $C_{R,\,min} \times S_N$;

— maximum rim width: $C_{R,\,max} \times S_N$.

The values obtained shall be rounded to the nearest standardized rim width in Table 2.

Table 5 — Coefficients for calculation of rim widths

Type of rim	Nominal aspect ratio H/S	Coefficients for calculation of approved rim width [a] C_R	
		min.	max.
5° tapered	100 to 75	0,65	0,80
	70	0,675	0,80
	65	0,70	0,80
	60	0,725	0,825
	55	0,75	0,825
	50 b	0,75	0,825
15° tapered	90 to 70	0,70	0,80
	60 and 65	0,75	0,825
	55	0,775	0,825
	50	0,80	0,85
	45 [b]	0,80	0,85

[a] Other coefficients may be specified in relation to special services by agreement among tyre, rim, wheel and motor vehicle manufacturers.

[b] For H/S lower than 50 and 45 respectively, further coefficients will be established.

6 Tyre dimension tables

Examples of a few sizes in a tyre dimensions table are given in Annex C. The figures shown in the column headed "Rim" are codes related to measuring rim width, R_m (see Table 2 for code correlation).

7 Method of measurement of tyre dimensions

Before measuring, tyres shall be mounted on the measuring rim, inflated to the recommended pressure, and allowed to stand for a minimum of 24 h at normal room temperature, after which the inflation pressure shall be readjusted to the original value.

8 Service characteristics

8.1 Tyre load-carrying capacity

Load indexes are shown in Table 6.

8.2 Speed symbol

Speed symbols are shown in Table 7.

8.3 Load-carrying capacity at various speeds

When the tyre is fitted on a vehicle with a maximum speed capability different from the tyre reference speed, variations of load are granted in relation to the load corresponding to the load index (see Tables 8 and 9). To obtain improved operating performance under these conditions, inflation pressures higher than the basic pressure may be required.

Table 6 — Correlation between load index and tyre load-carrying capacity (TLCC)

Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg	Load Index (LI)	TLCC kg
0	46	40	140	80	450	120	1 400	160	4 500	200	14 000	240	45 000
1	46,2	41	145	81	462	121	1 450	161	4 625	201	14 500	241	46 250
2	47,5	42	150	82	475	122	1 500	162	4 750	202	15 000	242	47 750
3	48,7	43	155	83	487	123	1 550	163	4 875	203	15 500	243	48 750
4	50	44	160	84	500	124	1 600	164	5 000	204	16 000	244	50 000
5	51,5	45	165	85	515	125	1 650	165	5 150	205	16 500	245	51 500
6	53	46	170	86	530	126	1 700	166	5 300	206	17 000	246	53 000
7	54,5	47	175	87	545	127	1 750	167	5 450	207	17 500	247	54 500
8	56	48	180	88	560	128	1 800	168	5 600	208	18 000	248	56 000
9	58	49	185	89	580	129	1 850	169	5 800	209	18 500	249	58 000
10	60	50	190	90	600	130	1 900	170	6 000	210	19 000	250	60 000
11	61,5	51	195	91	615	131	1 950	171	6 150	211	19 500	251	61 500
12	63	52	200	92	630	132	2 000	172	6 300	212	20 000	252	63 000
13	65	53	206	93	650	133	2 060	173	6 500	213	20 600	253	65 000
14	67	54	212	94	670	134	2 120	174	6 700	214	21 200	254	67 000
15	69	55	218	95	690	135	2 180	175	6 900	215	21 800	255	69 000
16	71	56	224	96	710	136	2 240	176	7 100	216	22 400	256	71 000
17	73	57	230	97	730	137	2 300	177	7 300	217	23 000	257	73 000
18	75	58	236	98	750	138	2 360	178	7 500	218	23 600	258	75 000
19	77,5	59	243	99	775	139	2 430	179	7 750	219	24 300	259	77 500
20	80	60	250	100	800	140	2 500	180	8 000	220	25 000	260	80 000
21	82,5	61	257	101	825	141	2 575	181	8 250	221	25 750	261	82 500
22	85	62	265	102	850	142	2 650	182	8 500	222	26 500	262	85 000
23	87,5	63	272	103	875	143	2 725	183	8 750	223	27 250	263	87 500
24	90	64	280	104	900	144	2 800	184	9 000	224	28 000	264	90 000
25	92,5	65	290	105	925	145	2 900	185	9 250	225	29 000	265	92 500
26	95	66	300	106	950	146	3 000	186	9 500	226	30 000	266	95 000
27	97,5	67	307	107	975	147	3 075	187	9 750	227	30 750	267	97 500
28	100	68	315	108	1 000	148	3 150	188	10 000	228	31 500	268	100 000
29	103	69	325	109	1 030	149	3 250	189	10 300	229	32 500	269	103 000
30	106	70	335	110	1 060	150	3 350	190	10 600	230	33 500	270	106 000
31	109	71	345	111	1 090	151	3 450	191	10 900	231	34 500	271	109 000
32	112	72	355	112	1 120	152	3 550	192	11 200	232	35 500	272	112 000
33	115	73	365	113	1 150	153	3 650	193	11 500	233	36 500	273	115 000
34	118	74	375	114	1 180	154	3 750	194	11 800	234	37 500	274	118 000
35	121	75	387	115	1 215	155	3 875	195	12 150	235	38 750	275	121 000
36	125	76	400	116	1 250	156	4 000	196	12 500	236	40 000	276	125 000
37	128	77	412	117	1 285	157	4 125	197	12 850	237	41 250	277	128 500
38	132	78	425	118	1 320	158	4 250	198	13 200	238	42 500	278	132 000
39	136	79	437	119	1 360	159	4 375	199	13 600	239	43 750	279	136 000

Table 7 — Correlation between speed symbol and speed category

Speed symbol	Speed category km/h
B	50
C	60
D	65
E	70
F	80
G	90
J	100
K	110
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
H	210

Table 8 — Load-carrying capacities at various speeds — Tyres with load index (single) ⩽ 121 and speed symbol J and above

Speed	Load, %, for speed symbol										
km/h	J	K	L	M	N	P	Q	R	S	T	H
Static	250	250	210	See Column L	See column L	See column L	See column L	See column L	See column L	See column L	See column L
10	180	180	175								
15	165	165	160								
30	125	125	135								
50	112	112	120								
70	107	107	112,5								
85	103	103	108,5								
100	100	100	105								
110	96	100	102,5								
120	88	93	100								
130	—	—	95	100	100	100	100	100	100	100	100
140			90	95							
150			—	—	—	—	—	—	—		
160											
170											
180											
190											
210											

NOTE 1 The inflation pressure shall be increased for load adjustments above 125 % or for speeds above 160 km/h in consultation with the tyre manufacturer.

NOTE 2 Load adjustments are valid for use on improved surface only.

NOTE 3 Consult rim and wheel manufacturers for confirmation of the strength of the rim/wheel for the intended service.

NOTE 4 For 70 km/h and above "speed" means the speed capability of the vehicle (maximum speed under fully laden conditions). For 65 km/h and below, "speed" means the operating speed of the vehicle.

Table 9 — Load-carrying capacities at various speeds — Tyres with load index (single) ⩾ 122, speed symbols F to M

Speed km/h	**Load, %, for speed symbol**					
	F	**G**	**J**	**K**	**L**	**M**
Static	250	See column F				
10	180					
15	165					
30	125					
50	112					
65	107,5	108,5	108,5	See column J		
80	100	104	104			
90	94	100	102			
100	85	95	100			
110	—	87	96	100	100	100
120		—	88	93	100	100
130			—	—	—	100

NOTE 1 The inflation pressure shall be increased for load adjustments above 125 % in consultation with the tyre manufacturer.

NOTE 2 Load adjustments are valid for use on improved surface only.

NOTE 3 Consult rim and wheel manufacturers for confirmation of the strength of the rim/wheel for the intended service.

NOTE 4 For 70 km/h and above "speed" means the speed capability of the vehicle (maximum speed under fully laden conditions). For 65 km/h and below, "speed" means the operating speed of the vehicle.

Annex A
(informative)

Guideline values for metric series, 5° rims

These values will serve as a guideline for the design of tyre dimensions, metric series, mounted on 5° tapered drop-centre rims (code-designated) with nominal rim diameters up to code 16 inclusive. For tyres mounted on 15° tapered drop-centre rims (code-designated), see annex B. For tyres mounted on different types of rims (millimetre-designated), other annexes will be established.

Table A.1 — Dimensional guidelines for metric "100" to "75" series tyres on 5° tapered rims

Nominal section width S_N mm	**Measuring rim width code** R_m	**Tyre design dimensions,** mm								
		Design section width S	**Design section height** [a], H						**Approved rim width codes**	
			Nominal aspect ratios, H/S							
			100	**95**	**90**	**85**	**80**	**75**	min.	max.
125	3.50	126	125	119	113	106	100	94	3	4
135	3.50	133	135	128	122	115	108	101	3.5	4.5
145	4.00	145	145	138	131	123	116	109	3.5	4.5
155	4.50	157	155	147	140	132	124	116	4	5
165	4.50	165	165	157	149	140	132	124	4	5
175	5.00	177	175	166	158	149	140	131	4.5	5.5
185	5.00	184	185	176	167	157	148	139	4.5	6
195	5.50	196	195	185	176	166	156	146	5	6
205	5.50	203	205	195	185	174	164	154	5	6.5
215	6.00	216	215	204	194	183	172	161	5.5	7
225	6.00	223	225	214	203	191	180	169	6	7
235	6.50	235	235	223	212	200	188	176	6	7.5
245	7.00	248	245	233	221	208	196	184	6.5	7.5
255	7.00	255	255	242	230	217	204	191	6.5	8
265	7.50	2.67	265	252	239	225	212	199	7	8.5
275	7.50	274	275	261	248	234	220	206	7	8.5
285	8.00	286	285	271	257	242	228	214	7.5	9
295	8.00	294	295	280	266	251	236	221	7.5	9.5
305	8.50	306	305	290	275	259	244	229	8	9.5
315	8.50	313	315	299	284	268	252	236	8	10
325	9.00	325	325	309	293	276	260	244	8.5	10
335	9.00	333	335	318	302	285	268	251	8.5	10.5
345	9.50	345	345	328	311	293	276	259	9	11
355	10.00	357	355	337	320	302	284	266	9	11
365	10.00	364	365	347	329	310	292	274	9.5	11.5

[a] The figures are based on normal tread pattern tyres.

Table A.2 — Dimensional guidelines for metric “70”, “65” and “60” series tyres on 5° tapered rims

Nominal section width	Theoretic. rim width	Measuring rim width code	Design section width	Design section height [a], H			Approved rim width codes				
S_N	R_{th}	R_m	S	mm			min.			max.	
				Nominal aspect ratios, H/S			Nominal aspect ratios, H/S			Nominal aspect ratios, H/S	
mm	K_1 = 0,70	K_4 = 0,75	mm	**70**	**65**	**60**	**70**	**65**	**60**	**70 and 65**	**60**
165	4,55	5,0	170	116	107	99	4.5	4.5	4.5	5	5.5
175	4,82	5,0	177	123	114	105	4.5	5	5	5.5	5.5
185	5,10	5,5	189	130	120	111	5	5	5.5	6	6
195	5,37	6,0	201	137	127	117	5	5.5	5.5	6	6.5
205	5,65	6,0	209	144	133	123	5.5	5.5	6	6.5	6.5
215	5,93	6,5	221	151	140	129	5.5	6	6	7	7
225	6,20	6,5	228	158	146	135	6	6	6.5	7	7.5
235	6,48	7,0	240	165	153	141	6	6.5	6.5	7.5	7.5
245	6,75	7,0	248	172	159	147	6.5	7	7	7.5	8
255	7,03	7,5	260	179	166	153	7	7	7.5	8	8.5
265	7,30	8,0	272	186	172	159	7	7.5	7.5	8.5	8.5
275	7,58	8,0	279	193	179	165	7.5	7.5	8	8.5	9
285	7,85	8,5	292	200	185	171	7.5	8	8	9	9.5
295	8,13	8,5	299	207	192	177	8	8	8.5	9.5	9.5
305	8,41	9,0	311	214	198	183	8	8.5	8.5	9.5	10
315	8,68	9,5	323	221	205	189	8.5	8.5	9	10	10
325	8,96	9,5	331	228	211	195	8.5	9	9.5	10	10.5
335	9,23	10,0	343	235	218	201	9	9	9.5	10.5	11
345	9,51	10,0	350	242	224	207	9	9.5	10	11	11
355	9,78	10,5	362	249	231	213	9.5	10	10	11	11.5
365	10,06	11,0	375	256	237	219	9.5	10	10.5	11.5	12

[a] The figures are based on normal tread pattern tyres.

Table A.3 — Dimensional guidelines for metric series “55” and “50” series tyres on 5° tapered rims

Nominal section width S_N	Theoretical rim width R_{th}	Measuring rim width code R_m	Design section width S	Design section height [a], H mm		Approved rim width codes	
				Nominal aspect ratios, H/S			
mm	K_1 = 0,70	K_4 = 0,80	mm	**55**	**50**	min.	max.
165	4,55	5,0	170	91	83	5	5.5
175	4,82	5,5	182	96	88	5	5.5
185	5,10	6,0	194	102	93	5.5	6
195	5,37	6,0	201	107	98	6	6.5
205	5,65	6,5	214	113	103	6	6.5
215	5,93	7,0	226	118	108	6.5	7
225	6,20	7,0	233	124	113	6.5	7.5
235	6,48	7,5	245	129	118	7	7.5
245	6,75	7,5	253	135	123	7	8
255	7,03	8,0	265	140	128	7.5	8.5
265	7,30	8,5	277	146	133	8	8.5
275	7,58	8,5	284	151	138	8	9
285	7,85	9,0	297	157	143	8.5	9.5
295	8,13	9,5	309	162	148	8.5	9.5
305	8,41	9,5	316	168	153	9	10
315	8,68	10,0	328	173	158	9.5	10
325	8,96	10,0	336	179	163	9.5	10.5
335	9,23	10,5	348	184	168	10	11
345	9,51	11,0	360	190	173	10	11
355	9,78	11,0	367	195	178	10.5	11.5
365	10,06	11,5	380	201	183	11	12

[a] The figures are based on normal tread pattern tyres.

Annex B
(informative)

Guideline values for metric series, 15° rims

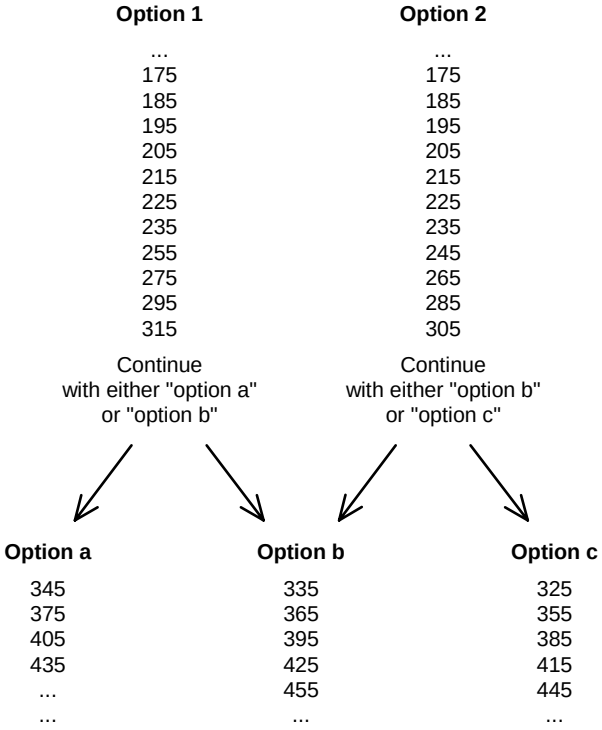
These values will serve as a guideline for the design of tyre dimensions, metric series, mounted on 15° tapered drop-centre rims (code-designated). For tyres mounted on 5° tapered drop-centre rims (code-designated), see annex A. For tyres mounted on different types of rims (millimetre-designated), other annexes will be established.

Table B.1 — Guideline values for metric "90" to "65" series tyres on 15° tapered drop-centre rims

Nominal section width [a] [b]	**Measuring rim width code**	**Design section width**	**Design section height** [c], *H* mm						**Approved rim width codes** [d]			
									Nominal aspect ratios, *H/S*		**Nominal aspect ratio,** *H/S*	
S_N	R_m	S	**Nominal aspect ratios,** *H/S*						**90 to 70**		**65**	
mm		mm	90	85	80	75	70	65	min.	max.	min.	max.
175	5.25	176	158	149	140	131	123	114	5.25	5.25	5.25	6.00
185	5.25	183	167	157	148	139	130	120	5.25	6.00	5.25	6.00
195	6.00	197	176	166	156	146	137	127	5.25	6.00	6.00	6.00
205	6.00	204	185	174	164	154	144	133	6.00	6.75	6.00	6.75
215	6.00	211	194	183	172	161	151	140	6.00	6.75	6.00	6.75
225	6.75	226	203	191	180	169	158	146	6.00	6.75	6.75	7.50
235	6.75	233	212	200	188	176	165	153	6.75	7.50	6.75	7.50
245	7.50	248	221	208	196	184	172	159	6.75	7.50	7.50	8.25
255	7.50	255	230	217	204	191	179	166	6.75	8.25	7.50	8.25
265	7.50	262	239	225	212	199	186	172	7.50	8.25	7.50	8.25
275	8.25	276	248	234	220	206	193	179	7.50	9.00	8.25	9.00
285	8.25	283	257	242	228	214	200	185	7.50	9.00	8.25	9.00
295	9.00	298	266	251	236	221	207	192	8.25	9.00	9.00	9.75
305	9.00	305	275	259	244	229	214	198	8.25	9.75	9.00	9.75
315	9.00	312	284	268	252	236	221	205	9.00	9.75	9.00	10.50
325	9.75	327	293	276	260	244	228	211	9.00	10.50	9.75	10.50
335	9.75	334	302	285	268	251	235	218	9.00	10.50	9.75	10.50
345	10.50	348	311	293	276	259	242	224	9.75	10.50	10.50	11.75
355	10.50	355	320	302	284	266	249	231	9.75	11.75	10.50	11.75
365	10.50	362	329	310	292	274	256	237	9.75	11.75	10.50	11.75
375	10.50	369	338	319	300	281	263	244	10.50	11.75	10.50	12.25
385	11.75	389	347	327	308	289	270	250	10.50	12.25	11.75	12.25
395	11.75	396	356	336	316	296	277	257	10.50	12.25	11.75	13.00
405	11.75	403	365	344	324	304	284	263	11.75	13.00	11.75	13.00
415	12.25	415	374	353	332	311	291	270	11.75	13.00	12.25	13.00
425	12.25	422	383	361	340	319	298	276	11.75	13.00	12.25	14.00
435	13.00	437	392	370	348	326	305	283	11.75	14.00	13.00	14.00
445	13.00	444	401	378	356	334	312	289	12.25	14.00	13.00	14.00
455	13.00	451	410	387	364	341	319	296	12.25	14.00	13.00	15.00

Footnotes a to d: see next page.

a For a given series, follow either "option 1" or "option 2" as a guideline for the nominal tyre section, S_N:



b These lists are open-ended. For other nominal tyre section widths, S_N, other annexes will be established as necessary.

c The figures are based on normal tread pattern tyres.

d Other rims may be specified in relation to special services by agreement among tyre, rim, wheel and motor vehicle manufacturers

Table B.2 — Dimensional guidelines for metric “60”, “55” and “50” series tyres on 15° drop-centre rims

Nominal section width [a] [b]	Measuring rim width code	Design section width	Design section height [c], H			Approved rim width codes [d]				
			mm			min.			max.	
			Nominal aspect ratios, H/S			Nominal aspect ratios, H/S			Nominal aspect ratios, H/S	
mm	K_4 = 0,8	mm	60	55	50	60	55	50	60 to 55	50
175	5,25	172	105	96		5.25	5.25		6.00	
185	6,00	187	111	102		5.25	6.00		6.00	
195	6,00	194	117	107		6.00	6.00		6.00	
205	6,75	208	123	113		6.00	6.00		6.75	
215	6,75	215	129	118		6.00	6.75		6.75	
225	6,75	222	135	124		6.75	6.75		7.50	
235	7,50	236	141	129		6.75	7.50		7.50	
245	7,50	243	147	135		7.50	7.50		8.25	
255	8,25	257	153	140		7.50	7.50		8.25	
265	8,25	264	159	146		7.50	8.25		8.25	
275	9,00	278	165	151		8.25	8.25		9.00	
285	9,00	285	171	157		8.25	9.00		9.00	
295	9,00	292	177	162		9.00	9.00		9.75	
305	9,75	306	183	168		9.00	9.00		9.75	
315	9,75	313	189	173		9.00	9.75		10.50	
325	10,50	328	195	179		9.75	9.75		10.50	
335	10,50	334	201	184		9.75	10.50		10.50	
345	10,50	341	207	190	173	10.50	10.50	10.50	11.75	11.75
355	11,75	361	213	195	178	10.50	10.50	11.75	11.75	11.75
365	11,75	368	219	201	183	10.50	11.75	11.75	11.75	12.25
375	11,75	374	225	206	188	10.50	11.75	11.75	12.25	12.25
385	12,25	386	231	212	193	11.75	11.75	12.25	12.25	13.00
395	12,25	393	237	217	198	11.75	12.25	12.25	13.00	13.00
405	13,00	407	243	223	203	11.75	12.25	13.00	13.00	14.00
415	13,00	414	249	228	208	12.25	13.00	13.00	13.00	14.00
425	13,00	421	255	234	213	12.25	13.00	13.00	14.00	14.00
435	14,00	438	261	239	218	13.00	13.00	14.00	14.00	15.00
445	14,00	445	267	245	223	13.00	14.00	14.00	14.00	15.00
455	15,00	462	273	250	228	13.00	14.00	14.00	15.00	15.00
465	15,00	469			233			15.00		16.00
475	15,00	475			238			15.00		16.00
485	16,00	492			243			15.00		16.00
495	16,00	499			248			16.00		17.00
505	16,00	506			253			16.00		17.00

Footnotes a to d: see Table B.1

Table B.3 — Dimensional guidelines for metric series “45” series tyres on 15° drop centre rims

Nominal section width [a b] S_N mm	Measuring rim width code R_m K_4 = 0,85	Design section width S mm	Design section height [c] H mm	Approved rim width code [d]	
				min.	max.
355	11.75	354	160	11.75	11.75
365	12.25	365	164	11.75	12.25
375	12.25	372	169	11.75	12.25
385	13.00	386	173	12.25	13.00
395	13.00	393	178	12.25	13.00
405	14.00	410	182	13.00	14.00
415	14.00	416	187	13.00	14.00
425	14.00	423	191	13.00	14.00
435	15.00	440	196	14.00	15.00
445	15.00	446	200	14.00	15.00
455	15.00	453	205	14.00	15.00
465	16.00	469	209	15.00	16.00
475	16.00	476	214	15.00	16.00
485	16.00	483	218	15.00	16.00
495	17.00	499	223	16.00	17.00
505	17.00	506	227	16.00	17.00
515	17.00	513	232	16.00	17.00
525	18.00	529	236	17.00	18.00
Footnotes a to d: see Table B.1					

Annex C
(informative)

Tyre dimension tables

Example of dimension table of a tyre having nominal section width 185, nominal aspect ratio 90, radial, nominal rim diameter code 16, mounted on 5° tapered rim:

Tyre size designation	Measuring rim width code	Design tyre		Maximum tyre dimensions in-service	
		Section width S mm	Overall diameter D_o mm	Overall width W_{max} mm	Overall diameter $D_{o,max}$ mm
185/90 R 16	5.00	184	740	193	753

Example of dimension table of a tyre having nominal section width 265, nominal aspect ratio 75, diagonal, nominal rim diameter code 19.5, mounted on 15° tapered rim (drop-centre):

Tyre size designation	Measuring rim width code	Design tyre		Maximum tyre dimensions in-service	
		Section width S mm	Overall diameter D_o mm	Overall width W_{max} mm	Overall diameter $D_{o,max}$ mm
265/75 D 19.5	7.50	262	893	280	925

Example of dimension table of a tyre having nominal section width 305, nominal aspect ratio 45, construction Z, nominal rim diameter 500, mounted on a new concept rim with a rim/section ratio 0,5:

Tyre size designation	Measuring rim width mm	Design tyre		Maximum tyre dimensions in-service	
		Section width S mm	Overall diameter D_o mm	Overall width W_{max} mm	Overall diameter $D_{o,max}$ mm
305/45 Z 500	150	304	814	314	824

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Price based on 19 pages