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Automobile tyres— Designation and dimensions

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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Automobile tyres—Designation and dimensions

1 **Scope** This Japanese Industrial Standard specifies types and designations of automobile tyres (hereafter referred to as “tyres”), as well as basic items necessary to determine tyre dimensions, and is not applicable to tyres for industrial vehicles, construction vehicles, agricultural machines or two-wheeled vehicles.

NOTES 1 For details regarding specific tire sizes, reference shall be made to other official standards established in accordance with this Standard (hereafter referred to as “relevant standards”).

2 Units and figures appearing in braces { } in this Standard denote conventional units of specified values and shall be used only for reference from April 1, 1995.

3 The normative references to this Standard are as follows:

JIS D 4102 *Wheels/rims—Classification, designation and marking*

JIS D 4207 *Tyre valves for automobiles*

JIS D 4218 *Automobile parts—Wheels—Contours of rims*

JIS D 4230 *Automobile tyres*

JIS Z 8401 *Guide to the rounding of numbers*

4 The corresponding International Standards for this Standard are as follows:

ISO 4000-1 : 1994 *Passenger car tyres and rims—Part 1 : Tyres (metric series)*

ISO 4209-1 : 1993 *Truck and bus tyres and rims (metric series)—Part 1 : Tyres*

ISO 4223-1 : 1989 *Definitions of some terms used in the tyre industry—Part 1 : Pneumatic tyres*

2 **Definition of terms** For the purpose of this Standard, the definitions given in JIS D 4230 and the following definitions apply.

- (1) **design dimensions** dimensions used as reference in the design of tyres. Generic term for design sectional width, design sectional height, and design outside diameter.
- (2) **growth dimensions** dimensions that include growth due to running of the tyre. Generic term for total growth width and growth outside diameter.
- (3) **new product dimensions** dimensions of a new tyre measured by the specified method. Generic term for total width and outside diameter of a new tyre.
- (4) **total width** distance between tyre sidewalls under no-load condition while the

tyre is mounted to the applicable rim and charged with the specified air pressure
(Includes all protrusions such as patterns or characters on the side of tyre.)

- (5) sectional width width obtained by subtracting patterns or characters on the side of tyre from the total width of the tyre
- (6) outside diameter outside diameter of the tyre under no-load condition while the tyre is mounted to the applicable rim and charged with the specified air pressure
- (7) sectional height half of the difference between the rim diameter and the tyre's outside diameter
- (8) flat ratio ratio of the sectional height to the sectional width of the tyre
- (9) maximum loading capacity maximum mass which can be loaded to the tyre under the specified conditions
- (10) dual tyre distance distance of the center plane between the inner and outer wheels of dual tyres
- (11) applicable rim rim suitable for effective tyre performance

3 Tyres types Types of tyres shall be as specified in table 1 depending on application, construction, and profile.

Table 1 Types of tyres

Application		Construction	Profile (Flat ratio, etc.)	Example of tyre designation	
Passenger car tyres		Radial ply	Series 40	255/40ZR17	
			Series 45	225/45ZR17	
			Series 50	225/50R16 92V	
			Series 55	205/55R16 89V	
			Series 60	215/60R15 94H	
			Series 65	215/65R14 94H	
			Series 70	195/70R14 91S	
			Series 80	175/80R14 88S	
	Type T for emergency use	Radial ply	Series 70	T145/70R17 106M	
			Series 80	T145/80R16 105M	
		Bias ply	Series 70	T155/70D17	
			Series 80	T145/80D16	
			Series 90	T135/90D16	
Small truck tyres		Radial ply	—	7.00R15-12PR LT	
			Series 82	205R/16-8PR LT	
			Series 65	195/65R16 106/104L LT	
			Series 70	255/70R15 112L LT	
			Series 80	185/80R15 103/101L LT	
			Series 85	225/85R16 115/113L LT	
			Series 95	175/95R14 103/101L LT	
		15° taper	Series 50	215/50R15.5 100L LT	
			Series 60	205/60R17.5 111/109L LT	
			Series 70	215/70R17.5 118/116L LT	
			Series 80	205/80R17.5 114/112L LT	
		Bias ply		—	7.50-16-14PR LT
		For high-floatation	Radial ply	—	30 × 10.50R15-6PR LT
For light trucks	Bias ply	—	5.00-10-4PR ULT		
Truck and bus tyres		Radial ply	—	12.00R20-16PR	
			Large type	14.00R24-24PR	
			Series 80	13/80R20-18PR	
			15° taper	—	12R22.5-16PR
				Series 60	235/60R17.5 125/122J
				Series 70	295/70R22.5 149/146J
				Series 80	315/80R22.5 154/151J
		Bias ply	—	12.00-20-16PR	
			Wide base	15-19.5-12PR	
		Dedicated for trailers	Radial ply	Series 70	285/70R19.5 148/146J

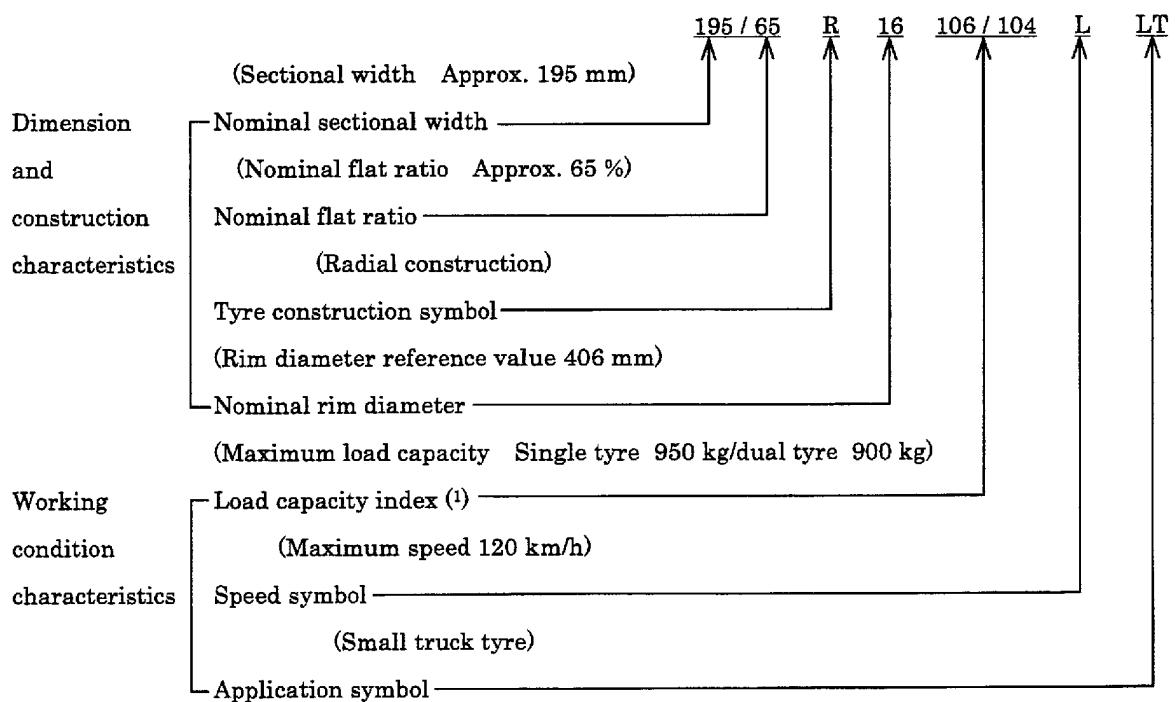
4 Tyre designation

4.1 General Tyres shall be identified by symbols each representing dimensions, construction, and working conditions and shall be expressed as follows.

- NOTES 1 Other symbols may be added when identification of the tyre is not possible by the following symbols or when more specific identification is required.
- 2 Symbols specified herein apply to tyres classified by metric series, and these symbols are used throughout. For tyres identified by other symbols, the relevant standards shall be referred to.

[Nominal sectional width]	[Nominal flat ratio]	[Tyre construction symbol]	[Nominal rim diameter]	[Load capacity index]	[Speed symbol]	[Application symbol]
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Example



Note⁽¹⁾ For single tires only one value will be shown.

NOTE : One space shall be inserted between [Nominal rim diameter] and [Load capacity index] and between [Speed symbol] and [Application symbol].

4.2 Nominal sectional width The nominal sectional width shall be indicated by a symbol based on sectional width in millimetre, and the final digit shall be the number 5.

4.3 Nominal flat ratio The nominal flat ratio shall be indicated by a symbol based on percentage of flat ratio, which is obtained by dividing sectional height by nominal sectional width, and which shall be a multiple of 5.

4.4 Tyre construction symbols Tyre construction symbols shall be as follows.

B: Belted bias construction

D or — (hyphen): Bias construction

R: Radial construction

NOTE : Radial ply tyres designed for vehicles with a maximum speed of over 240 km/h are in some cases expressed by ZR instead of R.

4.5 Nominal rim diameters Nominal rim diameters are shown in table 2. The value in millimetre corresponding to nominal rim diameter is defined as the reference of the rim diameter D_R and shall be used for calculation of tyre dimensions.

Table 2 Nominal rim diameters

5° taper rim				15° taper rim	
Nominal rim diameter	Reference value of rim diameter D_R (mm)	Nominal rim diameter	Reference value of rim diameter D_R (mm)	Nominal rim diameter	Reference value of rim diameter D_R (mm)
10	254	18	457	14.5	368
12	305	19	483	15.5	394
13	330	20	508	17.5	445
14	356	22	559	19.5	495
15	381	24	610	20.5	521
16	406			22.5	572
17	432			24.5	622

4.6 Load capacity index The maximum load capacity of the tyre shall be expressed by an index number as specified in table 3.

Table 3 Load capacity index

Index No.	Load capacity kg	Index No.	Load capacity kg	Index No.	Load capacity kg	Index No.	Load capacity kg	Index No.	Load capacity kg	Index No.	Load capacity kg
60	250	80	450	100	800	120	1 400	140	2 500	160	4 500
61	257	81	462	101	825	121	1 450	141	2 575	161	4 625
62	265	82	475	102	850	122	1 500	142	2 650	162	4 750
63	272	83	487	103	875	123	1 550	143	2 725	163	4 875
64	280	84	500	104	900	124	1 600	144	2 800	164	5 000
65	290	85	515	105	925	125	1 650	145	2 900	165	5 150
66	300	86	530	106	950	126	1 700	146	3 000	166	5 300
67	307	87	545	107	975	127	1 750	147	3 075	167	5 450
68	315	88	560	108	1 000	128	1 800	148	3 150	168	5 600
69	325	89	580	109	1 030	129	1 850	149	3 250	169	5 800
70	335	90	600	110	1 060	130	1 900	150	3 350	170	6 000
71	345	91	615	111	1 090	131	1 950	151	3 450	171	6 150
72	355	92	630	112	1 120	132	2 000	152	3 550	172	6 300
73	365	93	650	113	1 150	133	2 060	153	3 650	173	6 500
74	375	94	670	114	1 180	134	2 120	154	3 750	174	6 700
75	387	95	690	115	1 215	135	2 180	155	3 875	175	6 900
76	400	96	710	116	1 250	136	2 240	156	4 000	176	7 100
77	412	97	730	117	1 285	137	2 300	157	4 125	177	7 300
78	425	98	750	118	1 320	138	2 360	158	4 250	178	7 500
79	437	99	775	119	1 360	139	2 430	159	4 375	179	7 750

4.7 Speed symbols Speed symbols shall be expressed by alphanumeric characters corresponding to the speed divisions specified in table 4. The speed division column specifies the maximum speed permitted for each tyre.

NOTE : Tyres designed for vehicles with a maximum speed of over 240 km/h are in some cases expressed by ZR instead of tyre construction symbol R. In such cases, the maximum speed and the load capacity shall be determined by agreement between the parties concerned and performance conditions are not specified.

Table 4 Speed symbols

Speed symbol	Speed division km/h	Speed symbol	Speed division km/h	Speed symbol	Speed division km/h
B	50	K	110	S	180
C	60	L	120	T	190
D	65	M	130	U	200
E	70	N	140	H	210
F	80	P	150	V	240
G	90	Q	160	W	270
J	100	R	170	Y	300