

**DRAFT BELIZE STANDARD
SPECIFICATION FOR PNEUMATIC PASSENGER CAR TYRES**

Committee Representation

The preparation of this standard for the Standards Advisory Council established under the Standards Act 1992 was carried out under the supervision of the Bureau's Technical Committee for Tyres, which at the time comprised the following members:

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DBZS 6: 201X (Revision) - Pneumatic Passenger Car Tyres - Aug 1-October 10 2017

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DRAFT BELIZE STANDARD
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0 FOREWORD

- 0.1 The Belize Bureau of Standards has recommended that this standard be declared a compulsory standard for improved safety and quality assurance when making purchases on new and used tyres. The prevailing open market system enables the importation of large quantities of both new and used tyres into Belize. At present, there are no regulations addressing the quality and integrity of either new or used tyres imported into Belize. It is envisaged that this standard will be implemented by the Bureau of Standard through a Tyre Inspection Programme.
- 0.2 All pneumatic passenger car tyre importers and retailers shall comply with the requirements of this standard.
- 0.3 Consumers purchase tyres based on their perception of what constitutes a good quality tyre product. The risk involved here is that tyres may contain defects that are not easily detected by untrained consumers and hence become a safety hazard to road users. This standard, therefore, was developed in response to these concerns. It specifies the quality requirements for both new and used tyres for passenger vehicles. It specifically addresses the concerns related to used tyres by incorporating a section with detailed inspection and selection criteria.
- 0.4 This standard is based on the metric series of tyres. However, cognizance was taken of the fact that both the metric and imperial system of units are being used in the tyre industry and standardization bodies to express their requirements. Both units are accommodated in this standard where necessary.
- 0.5 In preparing this standard considerable assistance was derived from:
- a) ISO 4000-1 - Passenger Car Tyres and Rims – Part 1: Tyres (metric series) and
 - b) SLNS 41: 2001 - Specification for Pneumatic Tyres for Passenger Vehicles

1 SCOPE

- 1.1 This standard specifies requirements for new and used pneumatic tyres intended for passenger vehicles.
- 1.2 This standard does not apply to:
- a) retreaded or regrooved tyres, or to used tyres (casings) to be used for the retreading or regrooving process, or
 - b) Tyres for highway commercial vehicles.

2 NORMATIVE REFERENCES

The following referenced documents are indispensable for the application 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.

- a) BZS 5: 201X (Revision) – Definition of Terms Used in the Pneumatic Tyre Industry;
- b) BZ CP 1: Part 1: 201X (Revision) - Code of Practice for the Storage of Tyres, Inner Tubes and Flaps; and
- c) ISO 10191 - Passenger Car Tyres – Verifying Tyre Capabilities – Laboratory Test Methods.

3 TERMS AND DEFINITIONS

For the purpose of this standard, the definitions of Belize standard BZS 5: 201X (Revision) - Definitions of Terms Used in the Pneumatic Tyre Industry shall apply.

4 TYRE DESIGNATION

4.1 Size and Construction

4.1.1 Characteristics

- a) For metric sizes of tyres the characteristics shall be indicated as follows:

Nominal section width	Nominal aspect ration	Tyre construction code	Nominal rim diameter code
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NOTE: the order shall be maintained.

4.1.2 Nominal Section Width

The nominal section width of the tyre shall be indicated in millimetres, ending in either the numeral zero “0” or five “5”, so that in any one series of tyres with the same nominal aspect ratio, the values shall all end with “0” or all end with “5”.

4.1.3 Nominal Aspect Ratio

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

NOTE: When the Nominal Aspect Ratio is 82 for radial ply tyres; 95 and 88 for diagonal ply tyres, these numbers may be omitted.

4.1.4 Tyres Construction Code

The tyres construction code shall be as follows:

- a) B or a dash sign (-) for bias-belted construction;
- b) D for diagonal construction;
- c) R for radial ply construction.

NOTE: The use of another code letter (for example, in the case of a new construction type) shall first be remitted to the Belize Bureau of Standards for acceptance and inclusion in this list.

4.1.5 Nominal Rim Diameter Code

- a) For tyres mounted on existing rims, the code shall be as given in Table 1 below:

Table 1: Nominal Rim Diameter Code

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

- b) For 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 or the code number.

4.2 Service Description

4.2.1 General

The service condition characteristics or service description shall be indicated as follows:

Load Index

Speed Symbol

In the special case of tyres designed for vehicles having a maximum speed capability exceeding 300 km/h, the service description need not be indicated. However, the tyre manufacturer shall be consulted as to the maximum speed capability and load capacity of such tyres.

4.2.2 Load index

The tyre load capacity corresponding to the service conditions specified by the tyre manufacturer shall be indicated by a load index taken from Table 2. This indication is understood to be for a single mounting.

Table 2: Correlation between Load Index (LI) and Tyre Load-Carrying Capacity (TLCC)

LI	TLCC kg	LI	TLCC kg	LI	TLCC kg	LI	TLCC kg
50	190	70	335	90	600	110	1 060
51	195	71	345	91	615	111	1 090
52	200	72	355	92	630	112	1 120
53	206	73	365	93	650	113	1 150
54	212	74	375	94	670	114	1 180
55	218	75	387	95	690	115	1 215
56	224	76	400	96	710	116	1 250
57	230	77	412	97	730	117a	1 285
58	236	78	425	98	750	118a	1 320
59	243	79	437	99	775	119a	1 360
60	250	80	450	100	800	120a	1 400
61	257	81	462	101	825	—	—
62	265	82	475	102	850	—	—
63	272	83	487	103	875	—	—
64	280	84	500	104	900	—	—
65	290	85	515	105	925	—	—
66	300	86	530	106	950	—	—
67	307	87	545	107	975	—	—
68	315	88	560	108	1 000	—	—
69	325	89	580	109	1 030	—	—

a ISO tyre loads have a 116 load index maximum; some existing tyres may have a higher load index number.

The maximum tyre load capacity corresponding to the load index shall apply for speeds up to and including 210 km/h.

For tyres in the speed category V (between 210 km/h and 240 km/h), the maximum load capacity per tyre shall be reduced to 100 % at 210 km/h, 97 % at 220 km/h, 94 % at 230 km/h and 91 % at 240 km/h; linear interpolation is permitted.

In the case of speed categories W and Y, the maximum load capacity per tyre corresponding to the load index shall apply for speeds up to and including 240 km/h for W and 270 km/h for Y.

For tyres in the speed category W (between 240 km/h and 270 km/h), the maximum load capacity per tyre shall be reduced to 100 % at 240 km/h, 95 % at 250 km/h, 90 % at 260 km/h and 85 % at 270 km/h; linear interpolation is permitted.

For tyres in the speed category Y (between 270 km/h and 300 km/h), the maximum load capacity per tyre shall be reduced to 100 % at 270 km/h, 95 % at 280 km/h, 90 % at 290 km/h and 85 % at 300 km/h; linear interpolation is permitted.

See 3.6.3 and Table 3 for speed categories and their symbols.

For speeds of over 300 km/h or ZR-marked tyres or both, consult the tyre manufacturer for the maximum tyre load capacity permitted in relation to the maximum speed allowed for the tyre.

For vehicles with a design maximum speed capability of up to 60 km/h, the maximum load capacity corresponding to the load index may be exceeded, as shown below. However, an increase in the reference inflation pressure is necessary and should be determined in consultation with the tyre manufacturer. In the absence of such agreement, the following pressure increases are recommended:

- for 60 km/h, a 10 % load increase with a 10 kPa inflation pressure increase;
- for 50 km/h, a 15 % load increase with a 20 kPa inflation pressure increase;
- for 40 km/h, a 25 % load increase with a 30 kPa inflation pressure increase;
- for 30 km/h, a 35 % load increase with a 40 kPa inflation pressure increase;
- for 25 km/h, a 42 % load increase with a 50 kPa inflation pressure increase.

- 4.2.3 **Speed symbol** - The speed symbol shall be indicated by a letter taken from Table 3 corresponding to the speed category.

Table 3: Speed Symbols

Speed Symbol	Speed Category (mls/h)
J	100
K	110
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
W	270
Y ^a	300

NOTE: this list is not exhaustive and other categories and symbols might be added later.

^a Radial-ply tyres designed for speeds exceeding 300 km/h shall be identified by the code-letters ZR with the dimensional and constructional characteristics in place of the tyre construction code. Consult the tyre manufacturer for the maximum speed capability.

4.3 Other Service Characteristics

- 4.3.1 The word “TUBELESS” shall appear on tyres without tubes.
- 4.3.2. The maximum permissible inflation pressure which shall be indicated in psi or kPa.
- 4.3.3 The letters “XL” close to the tyre designation, or the words “REINFORCED” or “EXTRA LOAD” shall appear on tyres designed for loads and inflation pressures higher than the standard version.
- 4.3.4 The letters “LL”, close to the tyre size designation, or the words “LIGHT LOAD” shall appear on the sidewalls of tyres designed for loads lower than the standard version.

- 4.3.5 The letter “T”, immediately preceding the tyre size designation, shall be used to characterize high- pressure, special, temporary-use spare tyres.
- 4.3.6 Specific indications, if required, may be added to indicate:
- a) the type of vehicle for which the tyre is primarily designed, by using a symbol “P” for passenger vehicles;
 - b) the temporary use of certain spare tyres using indications such as “TEMPORARY USE” and/or symbol “T”;
 - c) bias-belted construction, with the words “BIAS-BELTED”
 - d) radial-ply construction, with the words "RADIAL"
 - e) the direction of mounting;
 - f) the direction of rotation;
 - g) the type of tread pattern;
 - h) other characteristics.

NOTE: Where anyone of these optional markings is used it shall be so positioned that confusion shall not result from its proximity to any other required service condition marking.

5 MARKING AND LABELLING

- 5.1. Each tyre shall have permanently moulded into or onto both sidewalls, in letters and numerals not less than 2 mm high, the following information:
- a) the designation of the dimensional and constructional characteristics;
 - b) the designation of the load and speed characteristics;
 - c) the designation of other service characteristics
 - d) maximum permissible inflation pressure;
 - e) the words “tubeless” or “tube type” as applicable;
 - f) the word “radial” or the letter “R” placed in front of the rim diameter marking of the size designation if the tyre is a radial ply tyre;
 - g) the generic name of each cord material used in the plies (both sidewall and tread area) of the tyre; and
 - h) actual number of plies in the sidewall, and the actual number of plies in the tread area if different;

- i) country of origin.

EXAMPLE:

A tubeless tyre having a nominal section width of 165 mm, a nominal aspect ratio of 80, a radial- ply construction and a nominal rim diameter code of 15, whose service description consists of a load index (LI) of 87 corresponding to a tyre load-carrying capacity y of 545 kg, and which falls into the speed symbol H (210 km/h), is marked:

165/80 R 15 87 H

TUBELESS

165/80 R 15	Marking of dimensional and constructional characteristics.
87 H	Marking of load index and speed symbol (distinct location but in the Vicinity of preceding marking)
Maximum inflation Pressure 240 kPa	Location left to the discretion of the tyre manufacturer
TUBELESS	Location left to the discretion of the manufacturer
Polyester	Location left to the discretion of the manufacturer
2 ply	Location left to the discretion of the manufacturer

NOTE: See Annex A for other existing size markings.

- 5.2 The information shall be positioned in an area between the maximum section width and bead of the tyre on at least one sidewall. However, in no case shall the information be positioned on the tyre so that it is obstructed by the flange of any rim designated for use with that tyre in this standard.
- 5.3 The location of the marking of the load and speed characteristic shall be distinct but in the vicinity of the marking of dimensional and constructional characteristics.
- 5.4 No location is specified for the marking related to other service characteristics.
- 5.5 If the maximum inflation pressure of a tyre is 420 kPa (60 psi), the tyre shall have permanently moulded into or onto both sidewalls, in letters and numerals not less than 12.7 mm (1/2 inch) the words "Inflate to 420 kPa (60 psi)". On both sidewalls, the words shall be positioned in an area between the tyre shoulder and the bead of the tyre. However, in no case shall the words be positioned on the tyre so that they are obstructed by the flange of any rim designated for use with that tyre in this standard.
- 5.6 Each tyre shall be labelled with the name of the manufacturer, or brand name and number assigned to the manufacturer such as the Department of Transport (DOT) symbol or other markings indicating that the tyre was originally

manufactured to comply with the latest version of the Federal Motor Vehicle Safety Standards (FMVSS) of the United States of America or by other recognized international bodies or practices.

6 SAMPLING, INSPECTION AND SELECTION OF TYRES

6.1 General

6.1.1 Each tyre shall conform to each of the following:

- a) It shall meet the requirements specified in 3.0 for its tyre size designation, type and maximum inflation pressure;
- b) Its maximum permissible inflation pressure shall be either in kPa or psi;
- c) It shall incorporate a tread wear indicator that will provide a visual indication when the tyre has worn to a tread depth of 1.6 mm; and
- d) It shall be designed to fit each rim specified for its size designation and type.

6.1.2 All tyre inspections shall be conducted by a trained and/or certified tyre inspector authorized by the Belize Bureau of Standards.

6.1.3 Each tyre sample, taken in accordance with section 6.2 and inspected in accordance with section 6.4, shall be cleaned and inspected outside then inside in order to detect all evident damage.

6.1.4 Each inspected tyre shall be certified to indicate whether it is acceptable or not acceptable for use on motor vehicles.

NOTE: The use of electronic, ultrasonic or holographic casing inspection equipment can aid in determining the integrity of the tyre.

6.1.5 Winter tyres shall not be imported into Belize or offered for sale for use on passenger vehicles.

6.1.6 A used tyre shall be acceptable for motor vehicle use only if it has a minimum tread depth of 4.0 mm and bears the following permanently moulded on it at the time of original manufacture.

- a) The Department of Transport (DOT) symbol or other markings indicating that the tyre was originally manufactured to comply with the latest version of the Federal Motor Vehicle Safety Standards (FMVSS) of the United States of America or by other recognized international bodies or practices.
- b) The size designation of the tyre;

- c) The load range or maximum permissible load; and
- d) Sufficient information to allow the tyre to be clearly identified as bias, bias belted or radial ply.

6.2 Sampling Size

- 6.2.1 For used tyres, one hundred percent (100%) sampling and inspection shall be conducted in accordance with section 6.4.
- 6.2.2 For new tyres, the size of the sample for inspection shall be representative of the lot as determined by the Belize Bureau of Standards.

6.3 Test Certificates for New Tyres

- 6.3.1 Test certificates for strength test, bead unseating test, high speed test and endurance test shall be carried out in accordance with the latest version of the ISO 10191 standard, 'Passenger Car Tyres – Verifying Tyre Capabilities – Laboratory Test Methods' or in accordance with any other tyre testing laboratory or tyre certification body recognized by the Belize Bureau of Standards.
- 6.3.2 The importer shall supply a certificate of compliance showing the results of tests conducted to determine compliance of the new tyres when requested by the Belize Bureau of Standards.
- 6.3.3 Where the manufacture, supplier or importer do not have the facilities for testing, the importer shall be responsible for arranging that tests be done by a tyre testing laboratory or tyre certification body recognized by the Belize Bureau of Standards.

6.4 Inspection of Tyres

A tyre containing any of the following weaknesses or damage shall not be accepted for motor vehicle use:

- a) Exposed cords due to tread wear or sidewall scuffing;
- b) Radial or groove cracks extending to the cords;
- c) Tread separation;
- d) Weather cracking extending to cords;
- e) Broken, damaged, kinked or exposed bead wires;
- f) Any visual evidence of belt damage;
- g) Ply separation;

- h) Porous liners or defective or opened splices in liners extending to cords;
- i) Loose cords on the liner ply;
- j) Damage to inner or bead sealing areas on tyres identified as tubeless;
- k) Evidence of having been run under-inflated or overloaded;
- l) Casing break-up (flex break);
- m) Generally weakened condition due to age, moisture, or exposure to oil or other chemical substances causing disintegration;
- n) Injuries to the plies in the bead area;
- o) Sidewall separation;
- p) Irregular wear;
- q) Blemished;

NOTE: For new tyres classified as blemishes are deemed acceptable for motor vehicle use subject to quality control criteria as defined by the Belize Bureau of Standards.

- r) Tyres showing evidence that studs were used or
- s) Nail, hole or other damage greater than 6 mm in diameter and/or number more than 4 per tyre.

6.5 Compliance

Where the samples taken in accordance with 6.2 and satisfy all other requirements of this standard, the lot shall be deemed to comply with this Belize Standard.

6.6 Nonconforming Tyres

6.6.1 Tyres intended for use on passenger cars, which do not conform to all the requirements of this standard, shall not be sold, offered for sale, or be imported into Belize.

6.6.2 All tyres that do not meet the requirements of this standard shall be destroyed by a means specified by the Belize Bureau of Standards.

7 STORAGE

New and used tyres shall be stored in accordance with BZ CP 1: Part 1: 201X - Code of Practice for the Storage of Tyres, Inner Tubes and Flaps.

8 TYRE INSPECTION PROGRAMME

All tyres shall be inspected by and registered with the Belize Bureau of Standards.

DBZS 6: 201X (Revision)_Pneumatic Passenger Car Tires _Aug 1-October 10 2017

Annex A
(Informative)

Other existing size markings

A series of tyres for radial-ply construction, whose identification is not in accordance with the tyre size designation defined in this standard, is currently marketed in various countries.

In particular, this tyre size designation does not include the nominal aspect ratio. These radial tyres were in existence long before publication of the first edition of this standard and traditionally, they pertain to the metric series. Although sometimes quoted as 82-series tyres, they have sizes similar to those of tyres identified by a nominal aspect ratio of 80.

Their size designation and relevant dimensions are shown in Table A.1.

Designation of size and construction	Measuring rim width code	Design tyre dimensions		Maximum tyre dimensions in	
		Section width	Overall diameter	Overall width	Overall diameter
		<i>S</i>	<i>D</i>	<i>W_{ma}</i>	<i>D_o</i>
125 R 12	3½	12	51	132	51
125 R 15		7	58		59
135 R 12	4	13	52	142	53
135 R 13			54		55
135 R 14			57		58
135 R 15			60		60
145 R 10	4	14	49	153	50
145 R 12			54		55
145 R 13			56		57
145 R 14			59		59
145 R 15			61		62
155 R 12	4½	15	55	163	56
155 R 13			57		58
155 R 14			60		61
155 R 15			63		64
165 R 13	4½	16	59	174	60
165 R 14			62		63
165 R 15			64		65
175 R 13	5	17	60	185	61
175 R 14			63		64
175 R 15			66		67
175 R 16			68		69
185 R 13	5½	18	62	196	63
185 R 14			65		66
185 R 15			67		68
195 R 14	5½	19	66	206	67
195 R 15		8	69		70
205 R 14	6	20	68	216	69
205 R 15			71		72
205 R 16			8		73