

DRAFT BELIZE STANDARD
SPECIFICATION FOR PNEUMATIC TYRES FOR NON-PASSENGER VEHICLES

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 27: 201X_Pneumatic Tyres for Non-Passenger Vehicles_Aug 1-Oct 10 2017

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0 FOREWORD

- 0.1 The standard was prepared to provide adequate information to tyre dealers/manufacturers and purchasers/consumers for the safe operational performance of pneumatic tyres used on non-passenger vehicles. Tyre dealers/manufacturers will be guided by the full range of tyre specifications outlined in the standard. The information provided to purchasers/consumers will permit proper selection and use of these tyres.
- 0.2 In preparing this standard considerable assistance was derived from:
- a) SLNS 42: 2005 - Specification for Pneumatic Tyres for Non - Passenger Vehicles

1 SCOPE

This standard specifies requirements for pneumatic tyres for use in non-passenger vehicles including multipurpose vehicles, trucks, buses, trailers and motorcycles.

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;
- c) ISO 2859-1: Sampling procedures for inspection by attributes -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
- d) ISO 3951 - Sampling procedures for inspection by variables -- Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL

3 TERMS AND DEFINITIONS

For the purpose of this standard, the definitions of Belize standard **BZS 5: 201X Definitions of Terms Used in the Pneumatic Tyre Industry** shall apply along with the following:

- 3.1 **commercial vehicle tyre** means a tyre for use on vehicles which carry ten (10) or more persons and/or with a Maximum Gross Weight (MGW) in excess of 3000 kg (6500 lb), as well as light trucks.
- 3.2 **light truck** means a self-propelled vehicle which is designed primarily to transport property or special purpose equipment and has a Maximum Gross Weight (MGW) in excess of 3000 kg (6500 lb) or less.

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:

- a) Size and construction; and
- b) Service condition characteristics

4.2 Size and Construction

4.2.1 Marking

The size and construction characteristics shall be indicated as follows:

Nominal section width	Nominal aspect ration	Tyre construction code	Nominal rim diameter code
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or

Nominal section width	Tyre construction code	Nominal rim diameter
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NOTE: the sequence from left to right shall be maintained.

4.2.2 Nominal Section Width

- a) The nominal section width shall be expressed in millimetres.
- b) For tyres fitted to 5° taper rims and 15° taper rims, (code designated) 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 tyres construction code shall be as follows:

- a) B or a dash sign (-) for bias-belted construction;
- b) D, or -, for diagonal/bias 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.

4.2.5 Nominal Rim Diameter

The normal rim diameter for 5° tapered bead set rims and for 18° tapered bead set (drop center) rims shall be expressed by a code (see Table 1 for code correlations).

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

Table 1: Nominal rim diameter code

Code		Nominal rim diameter, D _r (mm)
5° tapered rims	15° tapered (drop-centre) rims	
10	--	254
12	--	305
12	--	330
14	--	356
--	14.5	368
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

4.3 Service Conditions 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

- a) The load index is a numerical code associated with the maximum load a tyre can carry at the speed indicated by its symbol under the service conditions specified by the manufacturer (see table 2).

Table 2: Correlation between load index (u) and tyre load carrying capacity (TLCC)

Load index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)
0	46	40	140	80	450	120	1400	160	4500	200	14000	240	45000
1	46.2	41	154	81	462	121	1450	161	4625	201	14500	241	46250
2	47.5	42	150	82	475	122	1500	162	4750	202	15000	242	47750
3	48.7	43	155	83	487	123	1550	163	4875	203	15550	243	48750
4	50	44	160	84	500	124	1600	164	5000	204	16000	244	50000
5	51.5	45	165	85	515	125	1650	165	5250	205	16500	245	51500
6	53	46	170	86	530	126	1700	166	5300	206	17000	246	53000
7	54.5	47	175	87	545	127	1750	167	5450	207	17500	247	54500
8	56	48	180	88	560	128	1800	168	5600	208	18000	248	56000
9	58	49	185	89	580	129	1850	169	5800	209	18500	249	58000
10	60	50	190	90	600	130	1900	170	6000	210	19000	250	60000
11	61.5	51	195	91	615	131	1950	171	6150	211	19500	251	61500
12	63	52	200	92	630	132	2000	172	6300	212	20000	252	63000
13	65	53	206	93	650	133	2060	173	6500	213	20600	253	65000
14	67	54	212	94	670	134	2120	174	6700	214	21200	254	67000
15	69	55	218	95	690	135	2180	175	6900	215	21800	255	69000
16	71	56	225	96	710	136	2240	176	7100	216	22400	256	71000
17	73	57	230	97	730	137	2300	177	7300	217	23000	257	73000
18	75	58	236	98	750	138	2360	178	7500	218	23600	258	75000
19	77.5	59	243	99	775	139	2430	179	7750	219	24600	259	77500
20	80	60	250	100	800	140	2500	180	8000	220	25000	260	80000
21	82.5	61	257	101	825	141	2575	181	8250	221	25750	261	83500
22	85	62	265	102	850	142	2650	182	8500	222	26500	262	85000
23	87.5	63	272	103	875	143	2725	183	8750	223	27250	263	87000
24	90	64	280	104	900	144	2800	184	9000	224	28000	264	90000
25	92.5	65	290	105	925	145	2900	185	9250	225	29000	265	92500
26	95	66	300	106	950	146	3000	186	9500	226	30000	266	95000
27	97.5	67	307	107	975	147	3075	187	9750	227	30750	267	97500
28	100	68	315	108	1000	148	3150	188	10000	228	31500	268	100000
29	103	69	325	109	1030	149	3250	189	10300	229	32500	269	103000
30	106	70	335	110	1060	150	3350	190	10600	230	33500	270	106000
31	109	71	345	111	1090	151	3450	191	10900	231	34500	271	109000
32	112	72	355	112	1120	152	3550	192	11200	232	35500	272	112000
33	115	73	365	113	1150	153	3650	193	11500	233	36500	273	115000
34	118	74	376	114	1180	154	3750	194	11800	234	37500	274	118000
35	121	75	387	115	1215	155	3875	195	12150	235	38500	275	121000
36	125	76	400	116	1250	156	4000	196	12500	236	40000	276	125000

Load index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)	Load Index (u)	TLCC (kg)
37	128	77	412	117	1285	157	4125	197	12850	237	41250	277	128500
38	132	78	425	118	1320	158	4250	198	13200	238	42500	278	132000
39	136	79	437	119	1360	159	4375	199	13600	239	43750	279	136000

b) 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 3).

Table 3: Correlation between speed symbol and speed category

Speed Symbol	Speed Category (km/h)
B	50
C	60
E	65
F	70
G	80
J	90
K	100
L	110
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
Z	greater than 240

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 the direction.
- 4.4.3 In the case of special tread tyres, the symbol “ET” shall be shown on the tyre.

Example

A tyre having:

- a) A size and construction of:
 - i. nominal section width 275 mm;
 - ii. nominal aspect ratio 70%;
 - iii. radial construction;
 - iv. nominal rim diameter code 22.5;
- b) Service condition characteristics of :
 - i. Single load 2500 kg;
 - ii. Dual load 2300 kg;
 - iii. Reference speed 130 km/h.
- c) Other serviceable characteristics:
 - i. Tubeless
 - ii. Special tread
- d) Shall be marked:

275/70 R 22.5

140/137/M

Tubeless ET

5 MARKING AND LABELLING REQUIREMENTS

5.1 Each tyre shall have permanently moulded on each sidewall, except as specified in (j), the following information in letter sizes and at locations not less than 4.0 mm high and of a depth not less than 0.25mm if below the background surface, or not less than 0.40 mm if above the background surface:

- a) the designation of dimensional and constructional characteristics;
- b) the designation of load and speed characteristics;
- c) the designation of other service characteristics;
- d) the maximum load rating and corresponding inflation pressure of the tyre, shown as follows:
 - i. (Mark on tyres rated for single and dual load):
 - ‘Max load single ____ kg ____ at ____ kPa cold;
 - ‘Max load dual ____ kg ____ at ____ kPa cold;
 - ii. (Mark on tyres rated only for single load):
 - Max load kg ____ at ____ kPa cold;

- e) the speed restriction of the tyre, if 80 km/h or less, shown as follows:
Max speed ____ km/h;
- f) actual number of plies and the composition of the ply material in the sidewall and if difficult, in the tread area;
- g) the words “tubeless” or “tube type” as applicable;
- h) the word “ regroovable”, if the tyre is designed for regrooving;
- i) the word “radial” if the tyre is a radial ply tyre;
- j) the letter designating the tyre load range;
- k) a date code, on at least one sidewall, consisting of three digits, the first two naming the week of manufacture and the third digit the year of manufacture;
- l) identification of the manufacturer either by name or brand name;
- m) country of manufacture;
- n) Uniform Tyre Quality Grade Labelling (Treadwear, Traction and Temperature) (see 5.6);
- o) DOT marking;

NOTE: DOT signifies that the tyre complies with the United States Department of Transportation tyre safety standards and is approved for highway use.

DOT M5H3 459X 0605

The first two characters following DOT designate the tyre’s manufacturer and plant code. The third and fourth characters denote the tyre size. The fifth, sixth, seventh and eighth (optional) characters identify the brand and other significant characteristics of the tyre. The ninth and tenth characters denote the week the tyre was produced. The last two numbers signify the year in which the tyre was manufactured.

- 5.2 The markings shall be placed between the maximum section width (exclusive of sidewall decorations or curb ribs) and the bead on at least one sidewall, unless the maximum section width of the tyre is located in an area which is not more than one-fourth of the distance from the bead to the shoulder of the tyre. If the maximum section width falls within that area, the markings shall appear between the bead and a point one-half the distance from the bead to the shoulder 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 markings shall be in letters less than 2 mm high and raised above or sunk below the tyre surface not less than 0.25 mm, except that the marking depth shall not be less than 0.25 mm in the case of motorcycle tyres.
- 5.4 Markings may appear on only one sidewall and the entire sidewall area may be used in the case of motorcycle tyres and recreational, boat, baggage and special trailer tyres.
- 5.5 The maximum inflation pressure of a tyre shall be permanently moulded into or on both sidewalls in numerals not less than 12.0 mm high.

NOTE: Where applicable internationally accepted symbols, corresponding to or having the same meaning as any of the above requirements, may be used.

5.6 Uniform Quality Grade Labelling

5.6.1 The Uniform Tyre Quality Grading System (UTQGS) is a tyre information system that provides buyers with information on three categories – treadwear, traction and temperature. Each tyre manufacturer shall perform its own tests in these areas following prescribed test procedures. Each manufacturer shall then assign grades that are branded on the tyre. This is known as Uniform Quality Grade Labelling (UTQGL).

5.6.2 Treadwear

Treadwear grades typically range from 60 to over 600 in twenty-point increments. The actual life of any tyre is determined by the road surface quality, driving habits, inflation, wheel alignment and rotation it experiences.

5.6.3 Traction

Traction grades indicate the measurement of a tyre's ability to stop a car in straight-ahead motion on a wet test surface pavement. They do not measure straight-ahead acceleration. Traction grades range from AA, A, B and C with AA being the highest attained grade.

5.6.4 Temperature

Temperature grades also range from A to C with A being the highest. Temperature grades represent a properly maintained tyre's ability to dissipate heat under controlled indoor test wheel conditions. A tyre graded "C" if it meets the minimum performance required by the Department of Transport, and grades of "B" and "A" represent higher levels of performance than the minimum required by DOT.

Example: Treadwear 300 Traction AA Temperature A

6. SAMPLING, INSPECTION AND SELECTION OF TYRES

6.1 General

- 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 non-passenger vehicles.

6.2 Sample 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.
- 6.2.3 For the purpose of testing to determine conformity with this standard, the size of the sample for inspection and/or testing shall be representative of the lot under consideration and shall be selected in accordance with ISO 2859-1 or ISO 3951 or any other sampling method as determined by the Belize Bureau of Standards.

6.3 Test Certificates for New Tyres

- 6.3.1 Prior to testing, a tyre shall exhibit no visual evidence of tread, sidewall, ply, cord, inner liner, or bead separation, chunking, broken cords, cracking or open slices.
- 6.3.2 Test certificates for strength test, bead unseating test, high speed performance and endurance test shall be carried out in accordance with a 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 manufacturer, 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

6.4.1 Tread wear indicators

- a) Except as specified, each tyre shall have at least six treadwear indicators spaced equally around the circumference of the tyre that enable a person inspecting the tyre to determine visually whether the tyre has worn to a tread depth of 0.4 mm.
- b) Tyres either 305 mm or a smaller rim diameter shall have at least three such indicators.
- c) Motorcycle tyres shall have at least three such indicators which permit visual determination that the tyre has been worn to a tread depth of 0.8 mm.

6.4.2 Visual Inspection Criteria

A tyre containing any of the following weaknesses or damage shall not be certified for use on non-passenger vehicles:

- a) Chunking, cracking, inner liner separation;
- b) Exposed cords due to tread wear or sidewall scuffing;
- c) Radial or groove cracks extending to the cords;
- d) Tread separation;
- e) Weather cracking extending to cords;
- f) Broken, damaged, kinked or exposed bead wires;
- g) Any visual evidence of belt damage;
- h) Splice ply separation;
- i) Porous liners or defective or opened splices in liners extending to cords;
- j) Loose cords on the liner ply;
- k) Damage to inner or bead sealing areas on tyres identified as tubeless;
- l) Evidence of having been run under-inflated or overloaded;

- m) Casing break-up (flex break);
- n) Generally weakened condition due to age, moisture, or exposure to oil or other chemical substances causing disintegration;
- o) Injuries to the plies in the bead area;
- p) Sidewall separation;
- q) Irregular/uneven treadwear;
- r) Blemished;

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

- s) Tyres showing evidence that studs were used or
- t) 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 Non-conforming Tyres

6.6.1 Tyres intended for use on non-passenger vehicles 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 non-conforming tyres shall be isolated and disposed of by a method, including re-export at the importer's expense, approved by the Belize Bureau of Standards.

8 STORAGE

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.

9 TYRE INSPECTION PROGRAMME

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

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