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भारतीय मानक *मसौदा*

साइकिल और रिक्शा वायवीय टायर विशिष्टता
(*पांचवां पुनरीक्षण*)

Draft Indian Standard

CYCLE AND RICKSHAW PNEUMATIC TYRES SPECIFICATION
(Fifth Revision)

ICS 43.150

| Bicycles Sectional Committee TED 16 | Last Date of comments 06/02/2025 |

Bicycles Sectional Committee, TED 16

FOREWORD
 (*Formal clause will be added later*)

This standard was first published in 1963 and subsequently revised in 1969, 1985, 1991 and 2005. In this revision, following significant changes have been made:

1) Additional tyre sizes which are prevalent in use have been included.
2) Clincher tyre, Tubeless tyre (TL) and Tubeless-ready tyre (TLR) have been included
3) New definitions have been included added.
4) Symbols and abbreviated terms have been updated
5) New requirements have been added for clarification in

While preparing this standard considerable assistance has been drawn from ISO 5775-1:2023'Bicyc le tyres and rims — Part 1: Tyre designations and dimensions' issued by International organization for Standardization (ISO).

The composition of the Committee responsible for the formulation of this standard is given at **Annex F (Will be added later).**

To decide whether a particular requirement of this Standard has complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off as per IS 2:1960 Rules for rounding off numerical values (revised). The number of significant places retained in the rounded-off value should be the same as that of the specified value in this Standard.

Notwithstanding what is stated in this standard, applicable National, State, and Local bodies regulations shall apply. In the case of exports, corresponding regulations of exporting countries shall apply.

Draft *Indian Standard*
CYCLE AND RICKSHAW PNEUMATIC TYRES — SPECIFICATION

1 SCOPE

This standard specifies the requirements for cycle and rickshaw pneumatic tyres to be used for normal and heavy-duty application, while mounting on straight side, crotchet or hooked bead rims conforming to DOC:TED 16 (XXXXX).

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IS No.	Title
3400 (Part 1): 2021	Methods of test for vulcanized rubbers: Tensile stress-strain properties (fourth revision)
3400 (Part 4): 2012	Methods of test for vulcanized rubbers: Accelerated ageing and heat resistance (third revision)
4824:2022	Bead wire for tyres – Specification (Third revision)
4910	Tyre yarns, cords and tyre cord warp sheets made from man-made fibres — Method of test
(Part 3): 2023	Load and elongation characteristics (second revision)
(Part 13): 1989	Static adhesion of textile tyre cord to vulcanized rubber
7133:1985	Specification for cotton tyre cord and warp sheet for cycle and rickshaw (first revision)
11573:1986	Specification for polyamide yam for cycle and rickshaw tyres
10613: 2023	Cycles - Safety and performance requirements for bicycles (third revision)
DOC: TED 16 (18837)	BMX bicycles – Safety requirements and test methods
DOC: TED 16 (23113)	Cycles - Safety requirements for bicycles for young children (Second revision of IS 15533:2018/ISO 8098: 2014)
DOC: TED 16 (23339) Assisted	Cycles — Electrically power-assisted cycles (EPAC): Part 1 Pedal- Bicycles
DOC:TED 16 (XXXX8).	Bicycle — Rims — Specification (fifth revision)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply (*see* Fig. 1, Fig. 2 and Fig. 3).

3.1 Definitions (Applicable to tyres)

3.1.1 Bead — The part of the tyre that is shaped to fit the rim.

3.1.2 Sidewall — The part of the tyre between the tread and the bead.

3.1.3 Tread— The part of the tyre that normally comes in contact with ground.

3.1.4 Section Width (S) — The linear distance between the outsides of the sidewalls of an inflated tyre excluding elevations due to labelling (markings), decorations or protective bands or ribs.

3.1.5 Overall Width (W) — The linear distance between the outside of the sidewalls of an inflated tyre excluding elevations due to labelling (markings), decorations and protective bands or ribs.

3.1.6 Maximum Overall Tyre Width in Service — The overall width plus the following:

   a) Manufacturing tolerances; and

   b) Tolerance for service growth.

3.1.7 Section Height (H) — Half the difference between the overall diameter (D_o) and the nominal rim diameter (D_r) + NSD (Non-Skid Depth)

   Note- NSD is the tread rubber portion to be determined by the tyre manufacturer.

3.1.8 Design Section Height — Half the difference between the overall diameter (D_o)and the outer rim diameter.

3.1.9 Overall Diameter (D_o) — The diameter of an inflated tyre at the outermost surface of the tread.

3.1.10 Maximum Overall (Grown) Tyre Diameter in Service — The overall diameter plus:
   a) Manufacturing tolerances; and
   b) Tolerance for service growth.

3.1.11 Inflation Pressure— The pressure recommended by the tyre manufacturer to which a tyre is inflated to provide safe and efficient performance.

3.1.12 Clincher tyre— Tyre that has beads that lock onto the rim bead seat and/or rim hook when the tyre is inflated.

3.1.13 Tubeless tyre (TL) — Clincher tyre that is functional without an inner tube or sealant to maintain inflation pressure.

3.1.14 Tubeless-ready tyre (TLR)— clincher tyre that is functional without an inner tube but requires sealant to maintain inflation pressure.

3.1.15 Tubular tyre - A tubular tyre also known as a sew-up tyre, is a bicycle tyre that is stitched closed around the inner tube to form a torus.

3.2 Definitions (Applicable to Rims)

Only those definitions of rims that are used in specifying tyres are given here.

3.2.1 Specified Rim Diameter (D) — The diameter of the rim at the intersection point of the line of the bead seat and the inside vertical face of the flange.

3.2.2 Nominal Rim Diameter — Specified rim diameter rounded off to the nearest whole number, and used in the size designation of tyres and rims.

3.2.3 Specified Rim Width — The linear distance between the internal faces at the top of the flanges.

3.2.4 Nominal Rim Width —The rim width 'A' used in the size designation of rims.

3.2.5 Measuring Rim Width (R_m) — The width of the standard rim that is nearest to the theoretical rim

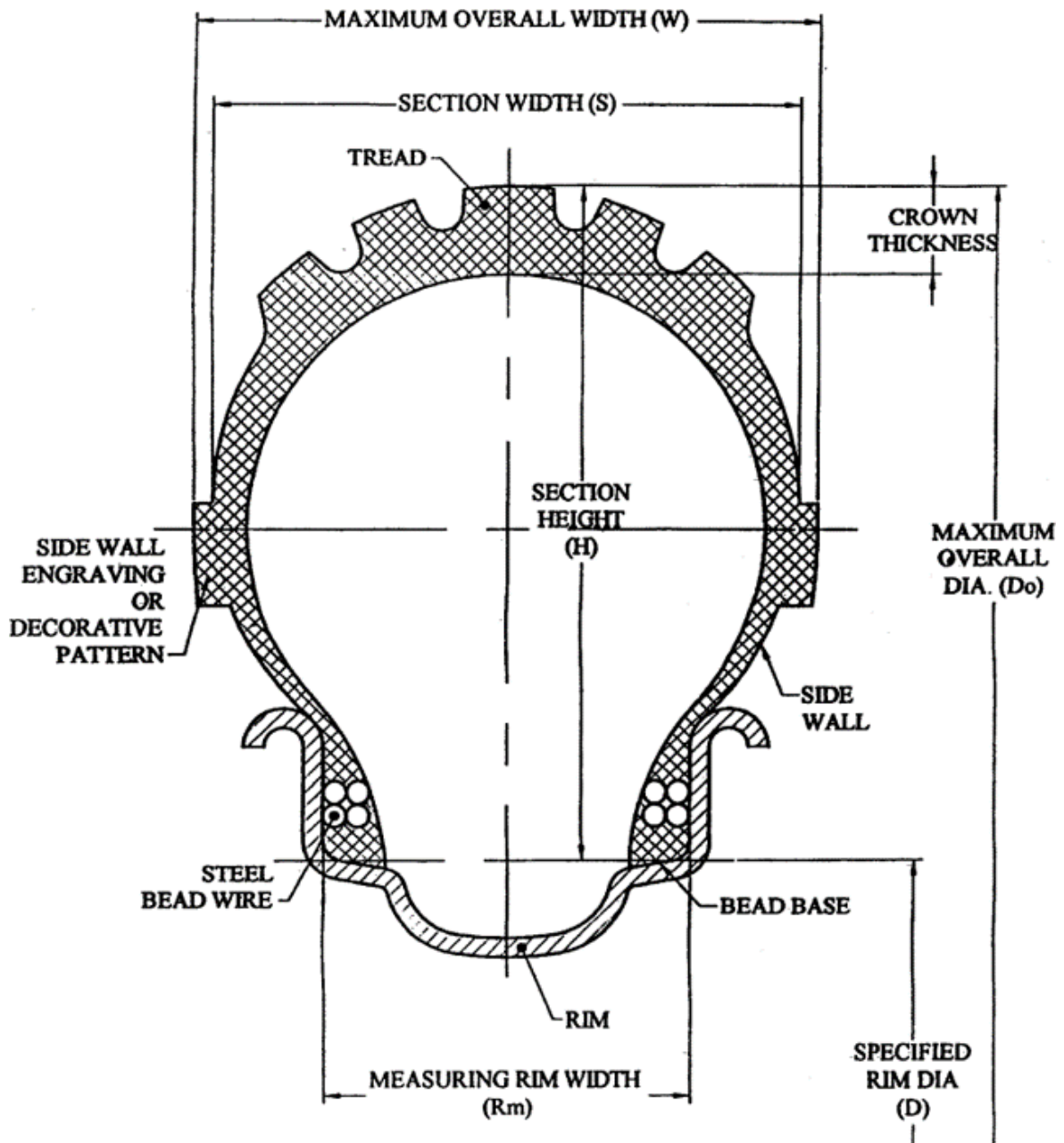width, and is used for the measurement of tyre dimensions.

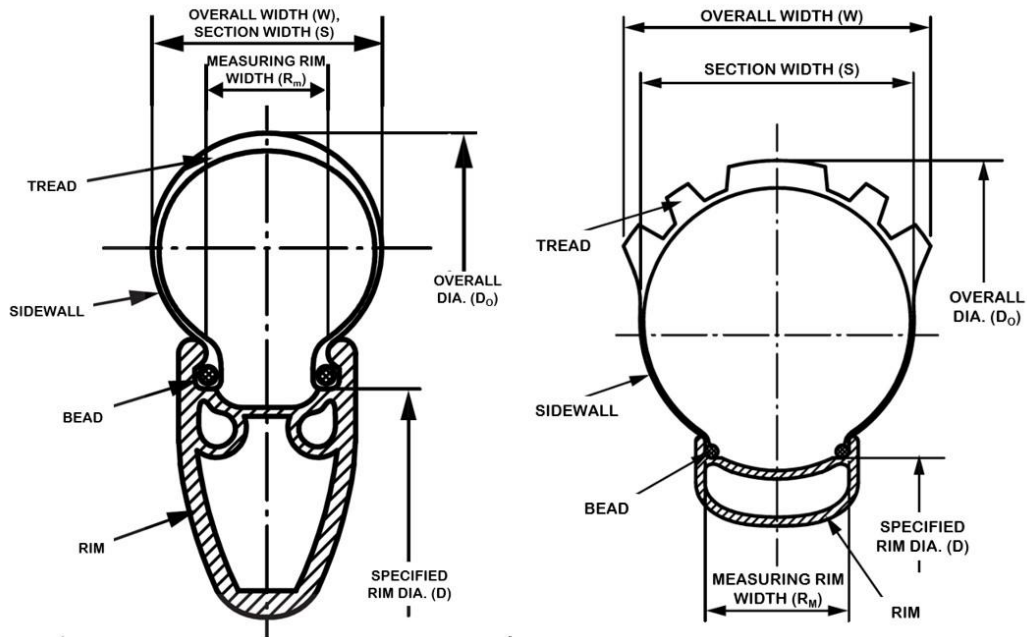FIG. 1 TYPICAL SECTION OF A CLINCHER TYRES MOUNTED ON STRAIGHT SIDE OR CROTCHET
TYPE RIM

FIG. 2 ADDITIONAL SECTIONS OF A CROCHET TYPE RIM FITMENT OF CYCLE TYRES
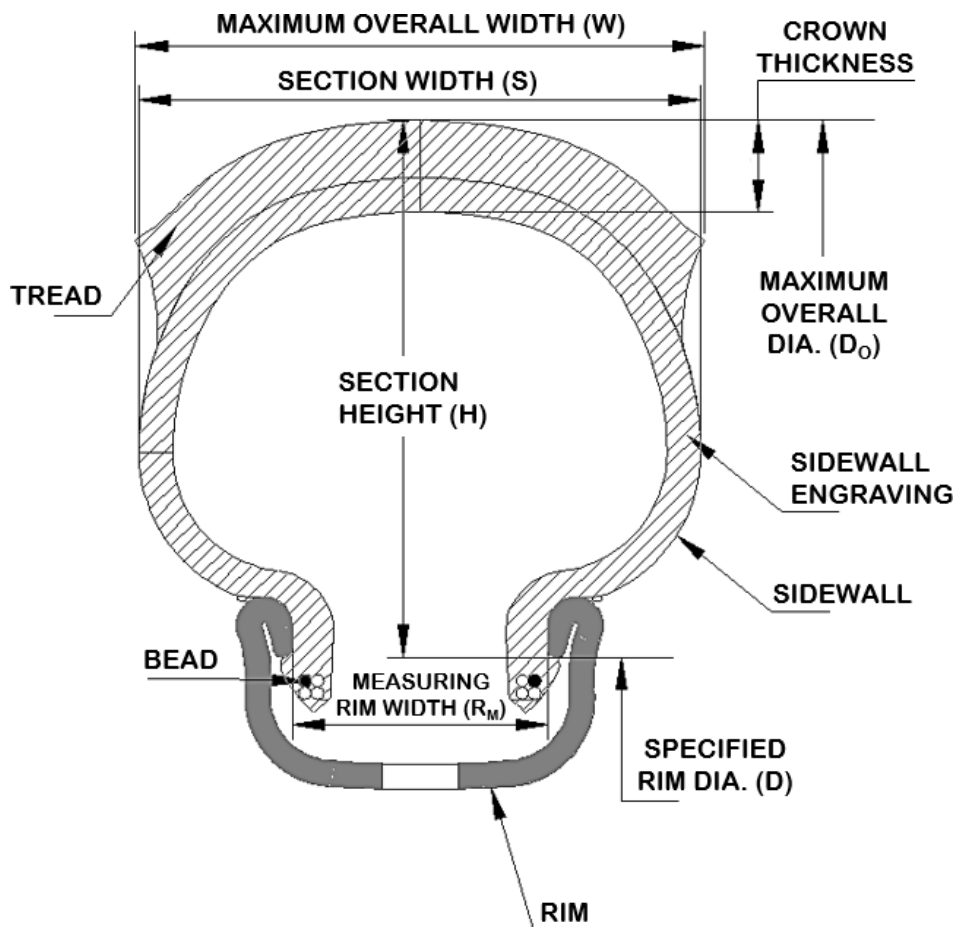

FIG. 3 BEADED EDGE- TYRES MOUNTED ON HOOKED BEAD/EDGE RIMS

4 TYPES AND DESIGNATION

4.1 Types

This standard covers the following types of tyres as shown in Fig. 4:

  a) Type A — Standard tyres / Type AA— Heavy duty tyres.

  b) Type B — For high way services.

  c) Type C — on /off road tyres.

  d) Type D — Off road or MTB tyres.
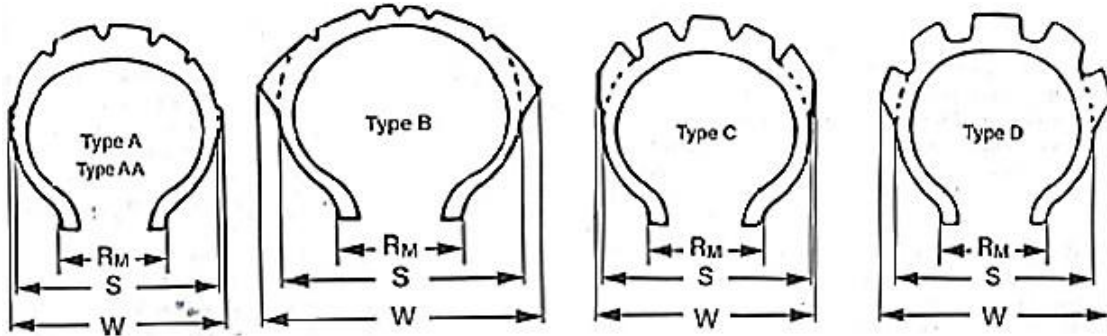
FIG. 4: TYPES OF TYRES

4.1.1 It is recommended that Type AA tyres be used for cycle rickshaw and Type A, Type B, Type C, & Type D tyres for bicycles. The most used tyres for bicycles are Type A & D.

4.2 Tyre Size Designation

4.2.1 *Clincher tyre size designation mounted on straight side or crotchet rims*

The size of the tyre shall be designated by nominal size designation:

  a) Nominal section width, in millimeters;

  b) Tyre construction code, represented by (–); and

  c) Nominal rim diameter code (as in DOC:TED 16 (XXXX8), Table 4).

 Example:

A tyre having a nominal section width of 32 mm and for mounting on a rim of nominal diameter code of 622 mm would be designated as:

$$32 - 622$$

4.2.2 *Beaded edge tyre size designation mounted on straight side or crotchet rims*

The size of the tyre shall be designated by:

  a) Overall diameter code, in millimeters;

   The overall diameter code shall be in whole even numbers.

  b) Tyre construction code, represented by ($\times$); and

  c) Nominal section width code

   The nominal section width code shall be expressed in hundredths or thousandths, ending in 5 (e.g. 1.375).

 Example:

A tyre having overall diameter code 20 and nominal section width code 1.375 shall be marked as follows:

$$20 \times 1.375$$

4.2.3 *Other service characteristics*

4.2.3.1 *Tyres size designation that can be mounted on both hooked bead (HB) and straight side rims*

Tyres of special construction can be designed in such a way as to permit their mounting both on hooked bead (HB) and straight side rims of similar diameters. In this case, the tyre shall be marked with the tyre designations of both categories, the designations being separated by a solidus, for example:

$$20 \times 1.75 \,/\, 47 - 406$$

4.2.3.2 *Tubeless marking*

Tubeless tyres shall be marked with "TUBELESS" or "TL" clearly visible on the side, even when the tyre is mounted.

Tubeless-ready tyres shall be marked with "TUBELESS READY" or "TLR" clearly visible on the side, even when the tyre is mounted.

4.2.3.3 *Directional arrow*

In the case of a preferred direction of rotation of the tyre, an arrow may be shown clearly visible on the side, even when the tyre is mounted, to indicate that direction. This is not mandatory.

4.2.3.4 *Pressure designation*

The maximum inflation pressure shall be either marked in kilopascals in multiples of 10 or in PSI. Refer Table 1 for recommended maximum pressures for straight side type rims.

    Min. pressure: - As per consumer ride efforts. This is not mandatory.

    Max. pressure: - the tire can safely operate at. i.e., is for safety purpose. This is mandatory.

Table 1: Maximum Pressure for Straight Side Type Rims (SS/TSS)
(*Clause* 4.2.3.4)

Nominal tyre section width S_N mm (1)	Maximum pressure in service KPa (2)	Maximum pressure in service PSI (3)
18 to 24	550	80
25 to 29	500	72
30 to 34	450	65
35 to 39	400	58
40 to 44	350	50
45 to 54	300	44
55 to 64	250	36
65 to 74	200	29
75 to 84	150	22

5 DIMENSIONS

5.1 The dimensions of the tyres, compatible with appropriate rim conforming to DOC:TED 16 (XXXX8) when measured in accordance with **7.1** shall be as given in Tables 2 and 3 for straight side rims and Table 4 for hooked bead rims respectively. Tyre dimensions as per ETRTO is given in Annex E.

Table 2 Dimensions for New Tyres - Tyres Mounted on Straight Side or Crotchet Type Rims, Except Tyres Meant for MTB cycles.

(*Clause* 5.1)

All dimensions in millimetres

Tyre size designation	Measuring rim width code ᵃ	Tyre dimensions (mm)							
		Design				Max. in service			
		Section width		Overall diameter		Overall width		Overall diameter	
		Min	Design	Min.	Design	Type A	Type D	Type A	Type D
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
18-622	13C	16	18	660	666	19	-	672	-
20-571	13C	18	20	613	619	21	-	625	-
20-559	13C	18	20	601	607	21	-	613	-
20-622	13C	18	20	664	670	21	-	676	-
23-559	15C	21	23	607	613	24	-	619	-
23-571	15C	21	23	619	625	24	-	631	-
23-622	15C	21	23	670	676	24	-	682	-
23-630	15C	21	23	678	684	24	-	690	-
25-540	15C	23	25	592	598	26	-	604	-
25-559	15C	23	25	611	617	26	-	623	-
25-622	15C	23	25	674	680	26	-	686	-
25-630	15C	23	25	682	688	26	-	694	-
28-559	17C	26	28	620	626	30	36	632	636
28-622	17C	26	28	683	689	30	36	695	699
30-559	17C	28	30	624	630	32	38	636	640
30-622	17C	27	30	687	693	32	38	699	703
32-622	17C	29	32	691	697	34	40	703	707
32-559	17C	29	32	628	634	34	40	640	644
32-630	17C	29	32	699	705	34	40	711	715
35-406	19C	32	35	481	487	37	43	493	497
35-349	19C	32	35	424	430	37	-	436	-
35-622	19C	32	35	697	703	37	43	709	713
37-305	19C	34	37	384	390	40	-	396	-
37-387	19C	34	37	466	472	40	-	478	-
37-406	19C	34	37	485	491	40	45	497	501
37-438	19C	34	37	517	523	40	-	529	-
37-451	19C	34	37	530	536	40	-	542	-
37-489	19C	34	37	568	574	40	45	580	584
37-540	19C	34	37	619	625	40	45	631	635
37-584	19C	34	37	663	669	40	45	675	679
37-590	19C	34	37	669	675	40	45	681	685
37-349	19C	34	37	428	434	40	-	440	-
37-400	19C	34	37	479	485	40	-	491	-
37-622	19C	34	37	701	707	40	45	713	717
37-630	19C	34	37	709	715	40	-	721	-
37-635	19C	34	37	714	720	40	45	726	730

37-642	19C	34	37	721	727	40	45	733	737
40-590	19C	37	40	675	681	43	48	687	691
40-305	19C	37	40	390	396	43	-	402	-
40-622	19C	37	40	707	713	43	48	719	723
40-635	19C	37	40	720	726	43	48	732	736
42-590	19C	39	42	679	685	45	50	691	695
42-622	19C	39	42	711	717	45	50	723	727
44-288	19C	41	44	381	387	47	52	393	397
44-622	19C	41	44	715	721	47	52	727	731
47-305	19C	44	47	404	410	50	-	416	-
47-355	19C	44	47	454	460	50	-	466	-
47-406	19C	44	47	505	511	50	55	517	521
47-457	19C	44	47	556	562	50	55	568	572
47-457	19C	44	47	556	562	50	55	568	572
47-507	19C	44	47	606	612	50	55	618	622
47-571	19C	44	47	670	676	50	55	682	686
47-622	19C	44	47	721	727	50	55	733	737
50-571	19C	47	50	676	682	53	58	688	692
50-507	19C	47	50	612	618	53	58	624	628
50-406	19C	47	50	511	517	53	58	523	527
50-622	19C	47	50	727	733	53	58	739	743
54-355	19C	51	54	468	474	57	62	480	484
54-571	19C	51	54	684	690	57	62	696	700
54-406	19C	51	54	519	525	57	62	531	535
54-507	19C	51	54	620	626	57	62	632	636
55-507	19C	52	55	622	628	58	-	634	-
57-622	19C	54	57	741	747	60	65	753	757
57-203	19C	54	57	322	328	60	-	334	-
57-254	19C	54	57	373	379	60	-	385	-
57-406	19C	54	57	525	531	60	65	537	541
57-507	19C	54	57	626	632	60	65	638	642
60-305	21C	57	60	430	436	63	68	442	446
62-622	21C	59	62	751	757	65	70	763	767
62-203	21C	59	62	332	338	65	-	344	-
76-406	35SS	73	76	563	569	79	84	575	579
102-406	35SS	99	102	615	621	105	110	627	631
[a] For dimensions of measuring rims, see DOC:TED 16 (XXXX8)									

Table 3: Dimensions for New Tyres - Tyres Mounted on Straight Side or Crotchet Type Rims, Tyres meant for MTB cycles only.

(*Clause* 5.1)

All dimensions in millimetres

Tyre size designation	Measuring rim width code [a]	Tyre dimensions (mm)							
		Design				Max. in service			
		Section width		Overall diameter		Overall width		Overall diameter	
		Min	Design	Min.	Design	Type A	Type D	Type A	Type D
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
28-559	17C	26	28	622	628	30	36	634	638
30-559	17C	28	30	626	632	32	38	638	642

32-559	17C	29	32	630	636	34	40	642	646
35-559	19C	32	35	636	642	37	43	648	652
35-584	19C	32	35	661	667	37	43	673	677
37-559	19C	34	37	640	646	40	-	652	-
40-584	19C	37	40	671	677	43	48	683	687
40-559	19C	37	40	646	652	43	48	658	662
42-559	19C	39	42	650	656	45	50	662	666
42-584	19C	39	42	675	681	45	50	687	691
44-584	19C	41	44	679	685	47	52	691	695
44-559	19C	41	44	654	660	47	52	666	670
47-622	19C	44	47	723	729	50	55	735	739
47-559	19C	44	47	660	666	50	55	672	676
47-584	19C	44	47	685	691	50	55	697	701
50-584	19C	47	50	691	697	53	58	703	707
50-559	19C	47	50	666	672	53	58	678	682
50-507	19C	47	50	614	620	53	58	626	630
50-406	19C	47	50	513	519	53	58	525	529
50-622	19C	47	50	729	735	53	58	741	745
52-507	19C	49	52	618	624	55	60	630	634
52-559	19C	49	52	670	676	55	60	682	686
52-622	19C	49	52	733	739	55	60	745	749
52-584	19C	49	52	695	701	55	60	707	711
54-559	19C	51	54	674	680	57	62	686	690
54-584	19C	51	54	699	705	57	62	711	715
54-622	19C	51	54	737	743	57	62	749	753
55-559	19C	52	55	676	682	58	63	688	692
55-584	19C	52	55	701	707	58	63	713	717
55-622	19C	52	55	739	745	58	63	751	755
57-622	19C	54	57	743	749	60	65	755	759
57-559	19C	54	57	680	686	60	65	692	696
57-584	19C	54	57	705	711	60	65	717	721
57-622	19C	54	57	743	749	60	65	755	759
58-559	21C	55	58	682	688	61	66	694	698
58-584	21C	55	58	707	713	61	66	719	723
58-622	21C	55	58	745	751	61	66	757	761
60-559	21C	57	60	686	692	63	68	698	702
60-584	21C	57	60	711	717	63	68	723	727
60-622	21C	57	60	749	755	63	68	761	765
62-559	21C	59	62	690	696	65	70	702	706
62-622	21C	59	62	753	759	65	70	765	769
64-584	23C	61	64	719	725	67	72	731	735
65-584	30C	62	65	721	727	68	73	733	737
65-622	30C	62	65	759	765	68	73	771	775
70-584	35C	67	70	731	737	73	78	743	747
71-559	30SS	68	71	708	714	74	79	720	724
71-584	30SS	68	71	733	739	74	79	745	749
71-622	30SS	68	71	771	777	74	79	783	787
76-507	35SS	73	76	666	672	79	84	678	682
76-559	35SS	73	76	718	724	79	84	730	734
76-584	35SS	73	76	743	749	79	84	755	759
76-622	35SS	73	76	781	787	79	84	793	797
102-507	35SS	99	102	718	724	105	110	730	734

102-584	35SS	99	102	795	801	105	110	807	811
102-559	35SS	99	102	770	776	105	110	782	786
108-507	35SS	105	108	730	736	111	116	742	746
122-559	40SS /94C	119	122	810	816	125	130	822	826
127-559	40SS	124	127	820	826	130	135	832	836
ª For dimensions of measuring rims, see DOC:TED 16 (XXXX8)									

Table 4 Dimensions for New Tyres — Tyres Mounted on Hooked Bead / Edge Rim
(*Clause* 5.1)

All dimensions in millimetres.

Tyre Size Designation	Measuring rim		Design tyre		In-service	
	Width	Overall diameter	Section width	Overall diameter	Maximum overall width	Maximum overall diameter
(1)	(2)	(3)	(4)	(5)	(6)	(7)
26 × 1.25	20	611.2	32	667	35	673
26 × 1.375	20	611.2	35	673	38	679
26 × 1.50	25	574.7	41	647	44	653
26 × 1.75	25	574.7	44	653	47	659
26 × 1.90	27	574.7	47	659	50	665
26 × 1.95	27	574.7	47	659	50	665
26 × 2.00	27	574.7	54	665	57	671
26 × 2.10	27	574.7	54	665	57	671
26 × 2.125	27	574.7	54	671	57	677
26 × 2.70	34	574.7	72	703	75	709
26 × 3.00	34	574.7	80	719	83	725
24 × 1.25	20	560.4	32	616	35	622
24 × 1.375	20	560.4	35	622	38	628
24 × 1.75	25	523.9	44	602	47	608
24 × 1.95	27	523.9	47	608	50	614
24 × 2.125	27	523.9	54	620	57	626
22 × 1.75	25	473.1	44	551	47	557
20 × 1.25	20	458.8	32	515	35	521
20 × 1.375	20	458.8	35	521	38	527
20 × 1.75	25	422.3	44	500	47	506
20 × 1.90	27	422.3	47	506	50	512
20 × 1.95	27	422.3	47	506	50	512
20 × 2.125	27	422.3	54	518	57	524
18 × 1.75	25	371.5	44	449	47	455
18 × 1.95	27	371.5	47	455	50	461
18 × 2.125	27	371.5	54	461	57	467
16 × 1.75	25	320.7	44	399	47	405
16 × 1.95	27	320.7	47	405	50	411
16 × 2.125	27	320.7	54	417	57	423
14 × 1.75	25	269.9	44	345	47	351
14 × 1.95	27	269.9	47	351	50	357
14 × 2.125	27	269.9	54	360	57	366

NOTES
1 Calculations of 'Design new tyre' dimensions are given in Annex A for guidance of the manufacturers.

> 2 Tyres may also be used on wider or narrower rims than the specified measuring rim. A table of permitted rim width, with a factor for the change in tyre section width, is given in Annex B.
> 3 Tolerance of bead seat circumferential diameter should be ± 1.0 mm.

5.2 Crown Thickness

The thickness at the crown shall be measured by a micrometre, and shall meet the following values:

Type	Thickness (Min) mm
A/AA	4.5/5.5
B	
C	5.5
D	

6 REQUIREMENTS/ACCEPTACE TESTS

6.1 Tyres shall consist of a rubberized cord fabric casing enclosing two single or multiple steel wire bead rings and tread of suitable rubber compound (*see* Fig. 1 and Fig. 3). The tyre should also be free from fins at bead and crown.

6.2 The tyre cord shall be made of grey cotton yarn conforming to IS 7133 or made of polyamide yarn/nylon fabric conforming to IS 11573.

6.3 When calculated according to **7.2** the minimum casing strength of the material as per 25.4 mm width shall be follows:

Type	Cotton Tyre	Nylon Tyre
AA	229 kgf (2 250 N)	400 kgf (3 920 N)
A		
B	128 kgf (1 260 N)	200 kgf (1 960 N)
C		
D		

6.4 Breaking Load of Bead Wire Joint

Bead wires (single or multiple) having joints shall have a minimum ultimate breaking load of 357 kgf (3 500 N) for Type AA tyres and 255 kgf (2 500 N) for Type A, Type B, Type C, & Type D tyres at the joints. The bead wire shall conform to IS 4824.

6.4.1 Typical values of breaking load of wire in as received and taken out of tyre conditions are given below:

Sl. No.	Breaking Load of wire as Received (*Min*) kg	Breaking Load of wire taken out of Tyre (*Min*) kg
(1)	(2)	(3)
i)	137.0	136.5
ii)	136.5	136.0
iii)	139.5	138.0
iv)	138.6	137.5

v)	136.0	136.0
NOTE- Values given in col 3 are on wire taken out from tyre, within the mould curing press temperature of 155°C to 165°C for 5 min.		

6.5 Requirement for the Rubber Compound

Rubber compound removed from the tread or side wall portion of the tyre of Type AA, Type A, Type B, Type C & Type D shall meet the requirements given in **6.5.1** to **6.5.3**.

6.5.1 *Tensile Strength and Elongation at Break*

When tested according to **7.3** the tensile strength and elongation at break of the rubber compound shall be as follows:

Tensile strength	81.5 kgf/cm^2 (8 MPa), *Min*
Elongation at break	300 Percent, *Min*

6.5.2 *Tension Set*

The tension set of the rubber compound, when tested according to **7.4** shall not be more than 10 percent.

6.5.3 Accelerated Ageing Test

The tensile strength of the rubber compound shall not vary by more than ±20 percent and its elongation at break shall not vary by more than $^{+10}_{-30} percent$ from the original values when tested according to **7.5.**

6.6 Adhesion Test

The adhesion values shall not be less than 4.0 kgf/25 mm (40 N/25 mm) wide strip, when tested according with Annex C.

6.7 Tyre Performance Test

When tested according to Annex D, the tyre shall not have any evidence of broken cords, tread separation, ply or bead separation or cracking of tread or sidewall rubber deep enough to expose the carcass cord fabric.

6.8 Wheels/Tyre Assembly — Concentricity Tolerance and Lateral Tolerance

For bicycles for young children, the wheel/tyre assembly shall pass the requirement as specified in **4.11.1** of DOC: TED 16 (23113). For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', the wheel/tyre assembly shall pass the requirement as specified in **4.8.1 & 4.8.2** of IS 10613. For BMX bicycles, the wheel/tyre assembly shall pass the requirement as specified in **4.12.1** of DOC:TED 16 (18837). For EPAC bicycles, the wheel/tyre assembly shall pass the requirement as specified in **4.3.9.1** of DOC: TED 16 (23339).

6.9 Wheel and Tyre Assembly —Overpressure Test

When inflated to 110 % of the maximum inflation pressure for a period of not less than 5 min, the tyre shall remain intact on the rim.

6.10 Wheel and Tyre Assembly —Static Strength Test

For bicycles for young children, the wheel/tyre assembly shall pass the test as specified in **4.11.3** of DOC: TED 16 (23113). For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', the wheel/tyre assembly shall pass the test as specified in **4.8.3** of IS 10613. For BMX bicycles, the wheel/tyre assembly shall pass the test as specified in **4.12.3**

of DOC: TED 16 (18837). For EPAC bicycles, the wheel/tyre assembly shall pass the test as specified in **4.3.9.3** of DOC: TED 16 (23339).

6.11 Wheel and Tyre Assembly —Fatigue Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', the wheel/tyre assembly shall pass the test as specified in Annex K of IS 10613. For EPAC bicycles, the wheel/tyre assembly shall pass the test as specified in **4.3.9.4** of DOC: TED 16 (23339). This test does not apply to young children's bicycles and BMX bicycles.

6.12 Wheel and Tyre Assembly —Impact Test

This test is only applicable for BMX bicycles. For BMX bicycles, the wheel/tyre assembly shall pass the test as specified in **4.13.5** of DOC: TED 16 (18837).

7 METHODS OF TEST

7.1 Dimensions

7.1.1 Before measuring, the new tyre (unused) shall be mounted with a tube, as required, on the specified rim conforming to DOC:TED 16 (XXXX8) and inflated to 3.26 kgf/cm^2 (320 kPa). The tyre shall be kept at normal room temperature for a minimum period of 24 h and inflation pressure checked and readjusted to the original value, if necessary.

7.1.2 The outside circumference of the tyre mounted as described-in **7.1.1** shall be measured at the outermost surface of the tread along the circumferential line of the tread and the value so obtained shall be divided by 3.1428 to derive the outside diameter.

7.1.3 The tyre section width shall be measured at a point avoiding any engraving or decorative pattern on the sidewalls of the tyre.

7.2 Casing Strength

Multiply the average breaking load of cord obtained as per IS 4910 (Part 3) by the number of cords per 25.4 mm at the crown of the tyre measured at right angles to the cord layers. Take the average of four readings equally spaced round the tyre for the measurement of the number of cords per 25.4 mm.

7.3 Tensile Strength and Elongation at Break

The tensile strength and elongation of rubber shall be determined from dumbbell shaped test pieces prepared by stripping off portion of tread or side wall rubber in accordance with IS 3400 (Part 1).

7.4 Tension Set

Strip off portion of tread or sidewall rubber. Remove tread or sidewall design by lifting and then cut from there a dumbbell test piece conforming to Type 1 of IS 3400 (Part 1). Mark on the parallel sided test piece $6.0 ^{+0.40}_{-0.00}$ mm wide, reference lines 25 mm apart and stretch it on a suitable apparatus to the elongation figure of 150 percent. Keep it in this position for 15 min. Then remove the test piece and measure the length between two reference lines after 1 h. Calculate the percentage increase in length from the original length of 25 mm.

7.5 Accelerated Ageing Test

Prepare dumbbell test pieces conforming to Type 1 of IS 3400 (Part 1) by stripping off portion of tread or sidewall rubber. Age them at 70 ± 1 °C for 7 days in an air oven in accordance with IS 3400 (Part 4) and subject them to tests for determining tensile strength and elongation at break after conditioning them in accordance with IS 3400 (Part 1).

8 MARKING

8.1 The following shall be marked on the sidewall of the tyre:

a) Manufacturers name, initials or trade-mark;
b) Tyre size designation;
c) Inflation pressure preferably in bars or PSI [1 bar = 1.02 kgf/cm^2(100 kPa) = 14.504 PSI];
d) Country of origin;
e) Special markings of identification-or rim type, direction of rotation by an arrow and other instructions, if applicable; and
f) Month and year of manufacture.

Example:

A tyre of nominal section width 32 mm and nominal rim diameter code 630, formerly identifie d as 27 x 1^1/$_4$, having a maximum recommended inflation pressure of 4 bar of March 2005 would be marked.

32-630 (27 x 1^1/$_4$) max. 400 kPa / 4 bar / 58 PSI – 3/05.

8.2 BIS Certification Marking

The material may also be marked with the Standard Mark.

8.2.1 The use of the Standard-Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark maybe granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX A
(Clause 5.1, Table 4*)*

PERMITTED RIM WIDTH WITH A FACTOR FOR THE CHANGE IN TYRE SECTION WIDTH

A-1 CALCULATION OF 'DESIGN NEW TYRE' DIMENSIONS

A-1.1 For clincher tyres mounted on straight side or crotchet type rims

A-1.1.1 Design Rim Width (R$_{design}$)

Each tyre size designation has a design rim width specified based on the nominal section width as shown in Table 5.

Table 5 Design Rim Width
(Clause A-1.1.1)

Nominal tyre section width, S_N (mm) **(1)**	Design rim width, R_{design} (mm) **(2)**	Nominal tyre section width, S_N (mm) **(1)**	Design rim width, R_{design} (mm) **(2)**
18 to 21	15	58 to 65	30
22 to 24	17	66 to 71	35
25 to 28	19	72 to 83	45
29 to 34	21	84 to 95	55

35 to 46	23	96 to 113	76
47 to 57	25	114 to 132	94

A-1.1.2 Measuring Rim Width (R_m)

The measuring rim width is the width of the existing rim nearest to the theoretical rim width (R_{th}). The theoretical rim width equals the product of the nominal section width (S_N) by the rim/section ratio (K_1):

$$R_{th} = K_1 \ S_N$$

NOTES:

1 For tyre width $S_N \leq 30$, $K_1 = 0.65$
2 For tyre width $S_N > 30$, $K_1 = 0.55$

A-1.1.3 Design New Tyre Section Width (S)

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

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

rounded to the nearest whole numbers.

NOTE — For tyres of existing sizes, $K_2 = 0.4$,

A-1.1.4 Design New Tyre Section Height (H_{design})

$$H_{desiddn} = \sqrt{(\frac{S_N}{2})^2 - (\frac{R_m}{2})^2} + \frac{S_N}{2} + G_f + XX_{corr,tread}$$

$G_f = 6$ mm

Note: G_f is the theoretical flange height and is a constant to ensure constant D_O for all types of rims.

The value of $X_{corr,tread}$ is given dependent on the nominal section width in Table 6

Table 6 Dependence of Tread Correction Factor $X_{corr,tread}$ on Nominal Section Width
(*Clause* A-1.1.4)

Nominal section width mm	$X_{corr,tread}$ mm
(1)	(2)
18 to 49	2.0
50 to 132	3.0

A-1.1.5 Design New Tyre Overall Diameter (D_{design})

The design new tyre overall diameter is the sum of the nominal rim diameter (D_r) plus twice the design new tyre section height (H):

$$D_{design} = D_r + 2 \ H_{design}$$

A-1.2 For beaded edge tyres mounted on hooked bead (HB) rims

A-1.2.1 Measuring Rim Width (R_m) and design dimensions

Table 7 gives the measuring rim width, R_m, the design tyre section width, S, and the design tyre section height, H, for a given nominal section width code.

Table 7 Measuring Rim Width and Design Dimensions
(Clause A-1.2.1)

Nominal section width code	Measuring rim width R_m	Design tyre	
		Section width S	Section height[a] H
(1)	(2)	(3)	(4)
1.25	20	32	28
1.375	20	35	31
1.75	25	44	39
2.125	27	54	48
[a] The design section height is equal to $0.88 \times$ design section width rounded to whole numbers.			

A- 1.2.2 Design New Tyre Overall Diameter (D)

The design new tyre overall diameter is the sum of the nominal outside rim diameter (D_2) plus twice the design new tyre section height (H):

$$D_o = D_2 + 2\,H$$

Refer DOC:TED 16 (XXXX8) for existing values of nominal outside rim diameter.

A-2 CALCULATION OF MAXIMUM TYRE DIMENSIONS IN SERVICE (FOR USE BY BICYCLE MANUFACTURERS IN DESIGNING FOR TYRE CLEARANCES)

A-2.1 For clincher tyres mounted on straight side or crotchet type rims

A-2.1.1 Width specifications

- **Maximum Overall Width in Service (W_{max})**

$$WW_{max} = \begin{cases} S + a.S_N & for\ S_N < 70\ mm \\ S + 4 & for\ S_N \geq 70\ mm \end{cases}$$

- Minimum section width (S_{min})

$$S_{min} = \begin{cases} S - a.S_N & for\ S_N < 70\ mm \\ S - 4 & for\ S_N \geq 70\ mm \end{cases}$$

Where

$$a = \begin{cases} 0.06 & for\ S_N \leq 35\ mm \\ 0.05 & for\ S_N > 35\ mm \end{cases}$$

It includes protective ribs, lettering embellishments, manufacturing tolerance and growth due to service. The values for the minimum section width and the maximum overall width shall be rounded to the nearest integer. Section width and overall width measured in accordance with **A-2.1.1** shall be within the limits given in Table 8.

Table 8 Tolerances on Tyre Width
(Clause A-2.1.1)

Nominal section width S_N (1)	Minimum section width S_{min} (2)	Maximum Overall Width W_{max} (3)
15 to 24	S - 1 mm	S + 1 mm
25 to 49	S - 2 mm	S + 2 mm
50 to 69	S - 3 mm	S + 3 mm
≥ 70	S - 4 mm	S + 4 mm

A-2.1.2 Maximum Overall Diameter in Service ($D_{O\ Max}$)

The maximum overall diameter in service is given by below equation, rounded to the nearest integer:

$$D_{0\ max} = \begin{cases} D + 2.15.S + 12 & for\ S < 66\ mm \\ 130.\ln(S) + D - 392 & for\ S \geq 66\ mm \end{cases}$$

It includes manufacturing tolerances and growth due to service.

A-2.2 For beaded edge tyres mounted on hooked bead (HB) rims

A-2.2.1 Maximum Overall Width in Service (W_{max})

The maximum overall width in service equals the design new tyre section width (S), plus 3 mm:
It includes protective ribs, lettering embellishments, manufacturing tolerance and growth due to service.

A-2.2.2 Maximum Overall diameter in Service, $D_{o,max}$

The maximum overall diameter in service equals the nominal outside rim diameter (D_2) plus twice the design new tyre section height (H) plus 6 mm:

$$D_{o,max} = D_2 + 2H + 6\ mm$$

It includes manufacturing tolerances and growth due to service.

ANNEX B
(Clause 5.1, Table 4**)**

PERMITTED RIM WIDTH, WITH A FACTOR FOR THE CHANGE IN TYRE SECTION WIDTH

B-1 For Clincher Tyres Mounted on Straight Side or Crotchet Type Rims
Recommended Rim Widths are given in Table 9

Table 9 Recommended Rim Widths
(Clause B-1)

All dimensions in millimetres

Nominal Section Width of Tyre (mm)	Recommended Rim Widths	Nominal Section Width of Tyre (mm)	Recommended Rim Widths
18-19	13-15	47-57	17-30
20-21	13-17	58-65	21-35
22-24	13-20	66-71	25-43
25-27	13-22	72-83	31-53
28	15-23	84-95	41-64
29-34	16-25	96-113	59-89
35-46	17-27	114-132	72-100
NOTE - When tyres are mounted on a rim with width other than that recommended, the section width of the tyre varies by 0.4 times the difference between recommended rim width and the width of the rim used.			

ANNEX C
(Clause 6.6)

ADHESION TEST

C-1 SAMPLE

A piece of tyre 45 mm wide and 200 mm long shall be taken out centrally from the crown of the tyre so that the centre line in the crown coincides with the centre line along the length of the same. Tread strip 25 mm wide is marked down the centre of the sample piece. The strip is then cut on either side to the depth of the casing cords, care being taken not to damage the cords. One end of the sample is then trimmed to appropriately 25 mm width for a length of about 40 mm and the tread strip is lifted for gripping into the testing machine jaws.

C-2 TESTING

The prepared sample is tested on a tensile testing machine having low inertia whose rate of traverse is 500 mm/min. The trimmed tread strip is clamped with the pulling jaw and the strip having casing cords are clamped to the other jaw. The tread strip is separated from the casing up to the other cord of the sample. The force (in Newton) required for the separation shall be the adhesion value.

ANNEX D
(Clause 6.7**)**

TYRE PERFORMANCE TEST

D-1 TYRE ENDURANCE TEST

D-1.1 The test wheel shall be a flat-smooth faced wheel diameter 1 708 mm ± 1 percent and the surface width more than the loaded tyre treads width. The air surrounding the tyre during the test shall be at 20 to 40°C, or a higher temperature, if acceptable to the tyre manufacturer.

> NOTE — A test wheel of a diameter smaller than 1 708 mm but not less than 1 520 mm may be used but this will require adjustment of the test loads to produce a tyre deflection equal to that obtained on a 1708 mm diameter test wheel.

D-1.2 Preparation of Tyre for the Test

Mount the tyre after ensuring that it exhibits no visual evidence of tread, sidewall, ply, cord or bead separation, broken cord or cracking on a standard test rim with the tube and inflate to a pressure as give n in Table 3. Condition the inflated tyre/rim wheel assembly in an ambient atmosphere 20 to 40°C or a higher temperature, if acceptable to the manufacturer for a minimum period of 3 h. Readjust the tyre pressure to the original inflation pressure immediately before the test.

D-1.3 Test Procedure

Mount the conditioned tyre/rim wheel assembly (*see* **D-1.2**) on the test machine axle and press the tyre tread against the face of the test drum at the initial Stage I test load, followed by test load Stage II and Stage III, as those specified in Table 10. Total test run will be 47 h. At the end of each test run, a record shall be kept of the tyre inflation pressure. Additionally, the first reading of the inflation pressure shall be taken 3 h after the start of the test. A normal tyre pressure rise from the initial test inflation pressure is permitted but if at later stages of the pressure check-ups the inflation pressure drops below the first value, the test tyre shall be rejected and the test repeated with a fresh tyre after the cause of the leakage or drop in inflation pressure is ascertained and the defect rectified.

D-1.4 Tyre Examination After Test

On completion of the cumulative test running time, the tyre shall be cut out and examined for evidence of broken cords, tread separation, ply or bead separation or cracking of tread or sidewall rubber deep enough to expose the carcass cord fabric.

Table 10 Test Inflation Pressure, Speed, Load and Duration
(Clause D-1.3*)*

Nominal Tyre Designation	Test Inflation Pressure kPa	Test Speed km/h	Tyre Test Loads(kg) and Duration (h)		
			Stage I	Stage II	Stage III
			7 h	16 h	24 h
(1)	(2)	(3)	(4)	(5)	(6)
32-630	480	24	72	78	84
37-540	450	24	70	76	82
37-590	450	24	75	81	87
40-534	410	24	72	78	84
40-584	410	24	78	85	91
40-635 Type AA	410	24	103	111	120
40-635 Type A	410	24	86	93	100
47-406	340	24	66	71	77
47-559	340	24	88	95	103
47-622	340	24	93	100	107

NOTES
1. The tyre size designations not covered above have been recommended for inclusion. However, the test parameters will be incorporated after study of data.
2. $1 \text{ kPa} = 0.01019 \text{ kgf/cm}^2$.

ANNEX E
(Clause 5.1)
TYRE DIMENSIONS AS PER ETRTO

E-1 Dimensions for New Tyres, Except Tyres Meant for MTB Cycles
Dimensions are given in Table 11

Table 11 Dimensions for New Tyres, Except Tyres Meant for MTB cycles
(Clause E-1)

All dimensions in millimetres

Tyre size designation	Measuring rim width code [a]	Tyre dimensions (mm)							
		Design				Max. in service			
		Section width		Overall diameter		Overall width		Overall diameter	
		Min	Design	Min.	Design	Type A	Type D	Type A	Type D
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
18-622	13	16	18	660	666	19	-	672	-
20-559	15	18	20	601	607	21	-	613	-
20-571	15	18	20	613	619	21	-	625	-
20-622	15	18	20	664	670	21	-	676	-
23-520	17C or TC	21	23	568	574	24	-	580	-
23-229	17C or TC	21	23	607	613	24	-	619	-
23-571	17C or TC	21	23	619	625	24	-	631	-
23-622	17C or TC	21	23	670	676	24	-	682	-
23-630	17C or TC	21	23	678	684	24	-	690	-
25-540	19C or TC	23	25	587	593	26	-	599	-
25-559	19C or TC	23	25	611	617	26	-	623	-
25-584	19C or TC	23	25	636	642	26	-	648	-
25-622	19C or TC	23	25	674	680	26	-	686	-
25-630	19C or TC	23	25	682	688	26	-	694	-
28-406	19C or TC	26	28	467	473	30	-	479	-
28-451	19C or TC	26	28	512	518	30	-	524	-
28-559	19C or TC	26	28	620	626	30	36	632	636
28-584	19C or TC	26	28	645	651	30	-	657	-
28-622	19C or TC	26	28	683	689	30	36	695	699
30-559	21C or TC	28	30	624	630	32	38	636	640
30-622	21C or TC	28	30	687	693	32	38	699	703
32-406	21C or TC	29	32	475	481	34	-	487	-
32-559	21C or TC	29	32	630	636	34	40	642	646
32-622	21C or TC	29	32	691	697	34	40	703	707
32-630	21C or TC	29	32	699	705	34	40	711	715

33-622	21C or TC	30	33	693	699	35	41	705	709
35-406	23	32	35	481	487	37	43	493	497
35-349	23	32	35	424	430	37	-	436	-
35-559	23	32	35	636	642	37	43	648	652
35-584	23	32	35	661	667	37	43	673	677
35-622	23	32	35	697	703	37	43	709	713
37-305	23	34	37	384	390	40	-	396	-
37-387	23	34	37	466	472	40	-	478	-
37-406	23	34	37	485	491	40	45	497	501
37-438	23	34	37	517	523	40	-	529	-
37-489	23	34	37	568	574	40	45	580	584
37-540	23	34	37	619	625	40	45	631	635
37-559	23	34	37	640	646	40	-	652	-
37-584	23	34	37	663	669	40	45	675	679
37-590	23	34	37	669	657	40	45	681	685
37-622	23	34	37	701	707	40	45	713	717
37-635	23	34	37	714	720	40	45	726	730
40-590	23	37	40	675	681	43	47	687	691
40-622	23	37	40	707	713	43	47	719	723
40-630	23	37	40	715	721	43	47	727	731
40-635	23	37	40	720	726	43	47	732	736
42-406	23	39	42	495	501	45	-	507	-
42-590	23	39	42	679	2685	45	47	691	696
42-622	23	39	42	711	717	45	47	723	727
42-635	23	39	42	724	730	45	-	736	-
44-622	23	41	44	715	721	47	47	727	731
45-622	23	42	45	717	723	48	-	729	-
47-305	25	44	47	404	410	50	-	416	-
47-355	25	44	47	454	460	50	-	466	-
47-406	25	44	47	505	511	50	55	517	521
47-457	25	44	47	556	562	50	55	568	572
47-507	25	44	47	606	612	50	55	618	622
47-571	25	44	47	670	676	50	55	682	686
47-622	25	44	47	721	727	50	55	733	737
50-406	25	47	50	511	517	53	58	523	527
50-507	25	47	50	612	618	53	58	624	628
50-584	25	47	50	689	695	53	58	701	705
50-622	25	47	50	727	733	53	58	739	743
54-406	25	51	54	519	525	57	62	531	535
55-406	25	52	55	521	527	58	-	533	-
55-507	25	52	55	622	628	57	-	634	-
55-559	25	52	55	674	680	58	63	686	690
55-584	25	52	55	699	705	58	63	711	715
57-203	25	54	57	322	328	60	-	334	-
57-406	25	54	57	525	531	60	65	537	541
62-203	25	58	61	332	338	64	-	344	-
62-406	25	59	62	535	541	65	-	547	-
62-622	30	59	62	751	757	65	70	763	767

ᵃ For dimensions of measuring rims, see DOC:TED 16 (XXXXX)

E-2 Dimensions for New Tyres, Except Tyres Meant for MTB Cycles
Dimensions are given in Table 12

Table 12 Dimensions for New Tyres, Tyres meant for MTB cycles only.
(*Clause* E-2)

All dimensions in millimetres

Tyre size designation	Measuring rim width code [a]	Tyre dimensions (mm)							
		Design				Max. in service			
		Section width		Overall diameter		Overall width		Overall diameter	
		Min.	Design	Min.	Design	Type A	Type D	Type A	Type D
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
25-540	19C or TC	23	25	587	593	26	-	599	-
28-559	19C or TC	26	28	620	626	30	36	632	636
30-559	21C or TC	28	30	624	630	32	38	636	640
32-559	21C or TC	29	32	630	636	34	40	642	646
35-203	23	32	35	280	286	37	43	292	296
35-559	23	32	35	636	642	37	43	648	652
35-584	23	32	35	661	667	37	43	673	677
37-254	23	34	37	335	341	40	45	347	351
37-559	23	34	37	640	646	40	-	652	-
40-559	23	37	40	646	652	43	47	658	662
40-584	23	37	40	671	677	43	47	683	687
42-559	23	39	42	650	656	45	50	662	666
42-584	23	39	42	675	681	45	50	687	691
44-559	23	41	44	654	660	47	52	666	670
44-584	23	41	44	679	685	47	52	691	695
45-584	23	42	45	681	687	48	53	693	697
45-622	23	42	45	719	725	48	53	731	735
47-203	25	44	47	302	308	50	55	314	318
47-559	25	44	47	660	666	50	55	672	676
47-584	25	44	47	685	691	50	55	697	701
47-622	25	44	47	723	729	50	55	735	739
50-203	25	47	50	310	316	53	58	322	326
50-305	25	47	50	412	418	53	58	424	428
50-355	25	47	50	462	468	53	58	447	451
50-406	25	47	50	513	519	53	58	525	529
50-507	25	47	50	614	620	53	58	626	630
50-559	25	47	50	666	672	53	58	678	682
50-584	25	47	50	691	697	53	58	703	707
50-622	25	47	50	729	735	53	58	741	745
52-559	25	49	52	670	676	55	60	682	686
52-584	25	49	52	695	701	55	60	707	711
52-622	25	49	52	733	739	55	60	745	749
54-507	25	51	54	622	628	57	62	634	638
54-559	25	51	54	674	680	57	62	686	690
54-584	25	51	54	699	705	57	62	711	715
54-622	25	51	54	737	743	57	62	749	753
55-559	25	52	55	676	682	58	63	688	692
55-584	25	52	55	701	707	58	63	713	717
55-622	25	52	55	739	745	58	63	751	755
57-305	25	54	57	426	432	60	65	438	442

57-507	25	54	57	628	634	60	65	640	644
57-559	25	54	57	680	686	60	65	692	696
57-584	25	54	57	705	711	60	65	717	721
57-622	25	54	57	743	749	60	65	755	759
58-559	30	55	58	682	688	61	66	604	608
58-584	30	55	58	707	713	61	66	719	723
58-622	30	55	58	745	751	61	66	757	761
60-406	30	57	60	533	539	63	68	545	549
60-507	30	57	60	634	640	63	68	646	650
60-559	30	57	60	686	692	63	68	698	702
60-584	30	57	60	711	717	63	68	723	727
60-622	30	57	60	749	755	63	68	761	765
62-507	30	59	62	638	644	65	70	650	654
62-559	30	59	62	690	696	65	70	702	706
62-584	30	59	62	715	721	65	70	727	731
62-622	30	59	62	753	759	65	70	765	769
64-559	30	61	64	694	700	67	72	706	710
65-559	30	62	65	696	702	68	73	708	712
65-584	30	62	65	721	727	68	73	733	737
71-559	35	68	71	708	714	74	79	720	724
71-584	35	68	71	733	739	74	79	745	749
71-622	35	68	71	771	777	74	79	783	787
75-584	45	72	75	741	747	78	83	753	757
76-559	45	73	76	718	724	79	84	730	734
76-584	45	73	76	743	749	79	84	755	759
76-622	45	73	76	781	787	79	84	793	797
100-559	76	97	100	766	772	103	108	778	782
102-559	76	99	102	770	776	105	110	782	786
102-584	76	99	102	795	801	105	110	807	811
110-559	76	107	110	786	792	113	118	798	802
120-559	94	117	120	806	812	123	128	818	822
122-559	94	119	122	810	816	125	130	822	826
ᵃ For dimensions of measuring rims, see DOC:TED 16 (XXXX8)									

E-3 Measuring Rim Width and Design Dimensions

New tyres mounted on crochet type rims - Design tyre dimensions are given in Table 13

Table 13 Measuring Rim Width and Design Dimensions

(*Clause* E-3)

All dimensions in millimetres

New tyres mounted on crochet type rims - Design tyre dimensions				
Nominal Tyre Section width (in Inches) S_N ($\pm$0.20 accepted)	Nominal Tyre Section width (mm) S_N	Measuring Rim Width R_m	Design Tyre	
			Section Width S	Section Height ᵇ H
(1)	(2)	(3)	(4)	(5)
0.60	16	13C	16	20
0.70	18	13C	18	22
0.80	20	13C	20	24

0.90	23	15C	23	27
1.00	25	15C	25	29
1.10	28	17C	28	33.5
1.20	30	17C	30	35.5
1.30	32	17C	32	37.5
1.40	35	19C	35	40.5
1.50	37	19C	37	42.5
1.60	40	19C	40	45.5
1.70	42	19C	42	47.5
1.70	44	19C	44	49.5
1.90	47	19C	47	52.5
2.00	50	19C	50	55.5
2.00	52	19C	52	57.5
2.10	54	19C	54	59.5
2.20	57	19C	57	62.5
2.40	60	21C	60	65.5
2.40	62	21C	62	67.5
2.50	64	23C	64	69.5
3.00	76	29C	76	81.5
3.50	89	Fat Tyre	89	94.4
4.00	102	Fat Tyre	102	107.5
4.50	114	Fat Tyre	114	119.5
4.80	122	Fat Tyre	122	127.5
5.00	127	Fat Tyre	127	132.5

1. Fat tyre: 89 to 130 mm (4 to 5 inches) width are typically mounted on 65 to 100 mm rims.
2. [b] The design section height is equal to $1 \times$ design section width rounded to whole numbers + NSD (4/5.5/6.5)mm.
3. $D_o = D_2 + 2 H + 2 NSD$

ANNEX F
(*Foreword*)

COMMITTEE COMPOSITION

BICYCLES SECTIONAL COMMITTEE, TED 16

Will be added later