INTERNATIONAL STANDARD

ISO 5751-2

Fourth edition
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Motorcycle tyres and rims (metric series) —

Part 2: Tyre dimensions and load-carrying capacities

Pneumatiques et jantes pour motocycles (série millimétrique) —
Partie 2: Cotes et capacités de charge des pneumatiques

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 5751 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 5751-2 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 10, *Cycle, moped, motorcycle tyres and rims*.

This fourth edition cancels and replaces the third edition (ISO 5751-2:1994), which has been technically revised.

ISO 5751 consists of the following parts, under the general title *Motorcycle tyres and rims (metric series)*:

— *Part 1: Design guides*

— *Part 2: Tyre dimensions and load-carrying capacities*

— *Part 3: Range of approved rim contours*

Motorcycle tyres and rims (metric series) —

Part 2:
Tyre dimensions and load-carrying capacities

1 Scope

This part of ISO 5751 specifies the tyre size designation, dimensions and load-carrying capacities of metric-series motorcycle tyres.

It is applicable to metric-series motorcycle tyres with a height-to-width ratio of 100 % and below.

NOTE See ISO 4249 for the requirements on motorcycle tyres and rims (code-designated series) for rim diameters code 13 and above; see ISO 6054 for the requirements on motorcycle tyres and rims (code-designated series) for rim diameters code 12 and below.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 5751. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 5751 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 4249-3, *Motorcycle tyres and rims (code-designated series) — Part 3: Rims*

ISO 5751-1:—[1], *Motorcycle tyres and rims (metric series) — Part 1: Design guides*

ISO 5751-3, *Motorcycle tyres and rims (metric series) — Part 3: Range of approved rim contours*

3 Terms and definitions

For the purposes of this part of ISO 5751, the terms and definitions given in ISO 4223-1 apply.

4 Tyre designation

4.1 General

The tyre designation shall be as specified in ISO 5751-1, completed by the addition of the service description, i.e. load index and speed symbol.

1) To be published. (Revision of ISO 5751:1994)

4.2 Tyre construction code

The tyre construction code shall be as follows:

— "-" for diagonal-ply tyres;

— "B" for bias-belted tyres;

— "R" for radial-ply tyres.

NOTE For tyres suitable for speeds greater than 240 km/h, see ISO 5751-1.

4.3 Marking — Example

A motorcycle tyre having

a) a size and construction of

— nominal section width of 100 mm,

— nominal aspect ratio 90, and

— nominal rim diameter code 18, with

b) a service description consisting of

— load-carrying capacity, 224 kg (corresponding to load index 56), and

— reference speed, 150 km/h (corresponding to speed symbol P),

shall be marked, respectively, as follows:

if in diagonal-ply construction	**100/90 – 18M/C**	**56 P**
if in bias-belted construction	**100/90 B 18M/C**	**56 P**
if in radial-ply construction	**100/90 R 18M/C**	**56 P**

4.4 Other markings

For nominal rim diameter codes 13 and above, the suffix "**M/C**" shall be added to the size and construction marking, after the nominal rim diameter code. For tyres having a nominal rim diameter code 16 and higher, this marking is not required before May 2003.

Extra-load version tyres shall be additionally marked either "**Extra Load**" or "**REINF**" (for "reinforced").

5 Tyre dimensions

5.1 General

Tables 1 to 10 show

a) the tyre size designation,

b) the measuring rim width code,

c) the design tyre dimensions, i.e. section width and overall diameter, and

d) the maximum tyre dimensions in service, i.e. overall width and diameter for the various types of tread configurations (see clause 7) to be considered by vehicle manufacturers in designing for tyre clearances.

NOTE The maximum dimensions in service do not include the values of the centrifugal radius (see ISO 5751-1).

5.2 Measurement method

Mount the tyre on a rim chosen according to ISO 5751-3, approved for the respective tyre size, ready for fitting and with the tyre inflated as follows.

a) For normal-load version tyres:

— 225 kPa for speed symbols S and lower;

— 280 kPa for speed symbols T and higher.

b) For extra-load version tyres:

— 280 kPa for speed symbols P and lower;

— 330 kPa for speed symbols Q and higher.

c) For light-load version tyres: 175 kPA.

Allow the tyre to stand for 24 h at normal room temperature, then readjust the inflation pressures to those specified above, before performing the measurements.

When performing measurements on rims having a rim width code differing from that of the measuring rim width code given in the tables of this part of ISO 5751, the section-width and overall-width values of the tyre shall be adjusted according to the formula:

$$W = W_m + 0{,}4\ (R - R_m)$$

where

W_m is the value measured;

R_m is the width, in millimetres, of the rim used for the measurements;

R is the width, in millimetres, of the measuring rim width code given in the tables.

6 Tread configurations

Figure 1 of ISO 5751-1:— shows various tread configurations. These attributions of tread type configurations to the service are to be considered as examples only. The choice of a given tread type configuration for a given tyre depends on the tyre manufacturer alone.

— Tread type A is commonly adopted for highway-service low-speed tyres.

— Tread type B is commonly adopted for highway-service high-speed tyres.

— Tread type C is commonly adopted for tyres used in on- and off-road service.

— Tread type D is commonly adopted for tyres exclusively in off-road service.

7 Load ratings

7.1 General

Tables 11 to 21 show the maximum tyre load-carrying capacity referred to the load index.

7.2 Load capacity at reduced speeds

Subject to acceptance by the tyre manufacturer and taking into account the conditions of use of the motorcycle, the load capacities corresponding to the load indices indicated in Tables 11 to 21 may be modified according to the percentage shown in Table 22. This modification is possible when the motorcycle maximum speed is different from the one associated with the speed symbol.

7.3 Load capacity at speeds higher than 210 km/h

For the load carrying capacities of tyres marked with speed symbols “V” or “W” operating at speeds higher than 210 km/h, see ISO 5751-1.

8 Inflation pressures

The following inflation pressures are guidelines only. Inflation pressures used in practice are subject to agreement between the tyre and vehicle manufacturers and should take into account not only the load, but also the tyre construction, road-holding, maximum speed, location of the tyre, operating conditions and mechanical characteristics of the vehicle.

The maximum load-carrying capacity is in reference to the following inflation pressures.

a) For nominal rim diameter codes up to and including 12 (for series 80 and above):

   1) light-load version — 175 kPa;

   2) normal-load version — 250 kPa;

   3) extra-load version — 300 kPa.

b) For nominal rim diameter codes 13 and above (for series 70 and below, also applicable to nominal rim diameter codes 12 and below):

   1) light-load version — 175 kPa;

   2) normal-load version

      — for tyres marked with a speed symbol up to and including P — 225 kPa,

      — for tyres marked with speed symbol Q, R or S — 250 kPa,

      — for tyres marked with speed symbol T, U or H — 280 kPa, and

      — for tyres marked with speed symbol V or W — 290 kPa;

   3) extra-load version tyres — these inflation pressures are to be increased by 50 kPa.

Table 1 — Tyre dimensions (design and in-service) — 100 series tyres with nominal rim diameter codes 13 and above

Dimensions in millimetres

Tyre size designation [a]	Measuring rim width code	Design tyre		In-service				
		Section width S	Overall diameter D_o	Maximum overall width W_{max}			Maximum overall diameter [b] $D_{o,max}$	
				Tread types A, B and C [c]	Tread types A, B and C [d]	Tread type D	Tread types A and B	Tread types C and D
70/100 – 14 M/C	1.60	69	496	74	76	86	506	514
80/100 – 14 M/C	1.85	80	516	86	88	100	528	536
90/100 – 14 M/C	2.15	90	536	96	99	113	548	558
70/100 – 15 M/C	1.60	69	521	74	76	86	531	537
80/100 – 15 M/C	1.85	80	541	86	88	100	553	561
90/100 – 15 M/C	2.15	90	561	96	99	113	573	583
60/100 – 16 M/C	1.50	61	526	65	67	76	534	540
70/100 – 16 M/C	1.60	69	546	74	76	86	556	562
80/100 – 16 M/C	1.85	80	566	86	88	100	578	586
90/100 – 16 M/C	2.15	90	586	96	99	113	598	608
100/100 – 16 M/C	2.50	101	606	108	111	126	620	630
130/100 – 16 M/C	3.00	129	666	138	142	161	684	698
140/100 – 16 M/C	3.50	142	686	152	156	178	706	720
60/100 – 17 M/C	1.50	61	552	65	67	76	560	566
70/100 – 17 M/C	1.60	69	572	74	76	86	582	588
80/100 – 17 M/C	1.85	80	592	86	88	100	604	612
90/100 – 17 M/C	2.15	90	612	96	99	113	624	634
100/100 – 17 M/C	2.50	101	632	108	111	126	646	656
110/100 – 17 M/C	2.50	109	652	117	120	136	668	678
120/100 – 17 M/C	2.75	119	672	127	131	149	588	700
130/100 – 17 M/C	3.00	129	692	138	142	161	710	724
70/100 – 18 M/C	1.60	69	597	74	76	86	607	613
80/100 – 18 M/C	1.85	80	617	86	88	100	629	637
90/100 – 18 M/C	2.15	90	637	96	99	113	649	659
100/100 – 18 M/C	2.50	101	657	108	111	126	671	681
110/100 – 18 M/C	2.50	109	677	117	120	136	693	703
120/100 – 18 M/C	2.75	119	697	127	131	149	713	725
130/100 – 18 M/C	3.00	129	717	138	142	161	735	749
70/100 – 19 M/C	1.60	69	623	74	76	86	633	639
80/100 – 19 M/C	1.85	80	643	86	88	100	655	663
90/100 – 19 M/C	2.15	90	663	96	99	113	675	685
100/100 – 19 M/C	2.50	101	683	108	111	126	697	707
110/100 – 19 M/C	2.50	109	703	117	120	136	719	729
120/100 – 19 M/C	2.75	119	723	127	131	149	739	751
130/100 – 19 M/C	3.00	129	743	138	142	161	761	775

[a] For appropriate tyre size designation, see 4.3.

[b] Maximum overall diameters are related to service up to 150 km/h.

[c] Radial-ply tyres.

[d] Diagonal-ply and Bias-belted tyres.

Table 2 — Tyre dimensions (design and in-service) — 100 series tyres with nominal rim diameter codes 12 and below

Dimensions in millimetres

Tyre size designation [a]	Measuring rim width code	Design tyre		In-service [b]	
		Section width S	Overall diameter D_o	Maximum overall width W_{max}	Maximum overall diameter $D_{o,max}$
70/100 – 8	1.60	69	343	75	353
80/100 – 8	1.85	80	363	86	375
90/100 – 8	2.15	90	383	97	395
100/100 – 8	2.50	101	403	109	417
110/100 – 8	2.50	109	423	118	439
120/100 – 8	2.75	119	443	129	459
130/100 – 8	3.00	129	463	139	481
70/100 – 10	1.60	69	394	75	404
80/100 – 10	1.85	80	414	86	426
90/100 – 10	2.15	90	434	97	446
100/100 – 10	2.50	101	454	109	468
110/100 – 10	2.50	109	474	118	490
120/100 – 10	2.75	119	494	129	510
130/100 – 10	3.00	129	514	139	532
70/100 – 12	1.60	69	445	75	455
80/100 – 12	1.85	80	465	86	477
90/100 – 12	2.15	90	485	97	497
100/100 – 12	2.50	101	505	109	519
110/100 – 12	2.50	109	525	118	541
120/100 – 12	2.75	119	545	129	561
130/100 – 12	3.00	129	565	139	583

[a] For appropriate tyre size designation, see 4.3.

[b] Tread type A and B.

Table 3 — Tyre dimensions (design and in-service) — 90 series tyres with nominal rim diameter codes 13 and above

Dimensions in millimetres

Tyre size designation [a]	Measuring rim width code	Design tyre		In-service				
		Section width S	Overall diameter D_o	Maximum overall width W_{max}			Maximum overall diameter [b] $D_{o,max}$	
				Tread types A, B and C [c]	Tread types A, B and C [d]	Tread type D	Tread types A and B	Tread types C and D
110/90 – 13 M/C	2.50	109	528	117	120	136	542	552
70/90 – 14 M/C	1.60	69	482	74	76	86	490	498
80/90– 14 M/C	1.85	80	500	86	88	100	510	518
90/90 – 14 M/C	2.15	90	518	96	99	113	530	538
90/90 – 15 M/C	2.15	90	543	96	99	113	555	563
100/90 – 15 M/C	2.50	101	561	108	111	126	573	583
110/90 – 15 M/C	2.50	109	579	117	120	136	593	603
120/90 – 15 M/C	2.75	119	597	127	131	149	613	623
130/90 – 15 M/C	3.00	129	615	138	142	161	631	643
140/90 – 15 M/C	3.50	142	633	152	156	178	651	663
150/90 – 15 M/C	3.50	150	651	161	165	188	669	683
60/90 – 16 M/C	1.50	61	514	65	67	76	522	530
70/90 – 16 M/C	1.60	69	532	74	76	86	540	550
80/90 – 16 M/C	1.85	80	550	86	88	100	560	568
90/90 – 16 M/C	2.15	90	568	96	99	113	580	588
100/90 – 16 M/C	2.50	101	586	108	111	126	598	608
110/90 – 16 M/C	2.50	109	604	117	120	136	618	628
120/90 – 16 M/C	2.75	119	622	127	131	149	638	648
130/90 – 16 M/C	3.00	129	640	138	142	161	656	668
140/90 – 16 M/C	3.50	142	658	152	156	178	676	688
150/90 – 16 M/C	3.50	150	676	161	165	188	694	708
60/90 – 17 M/C	1.50	61	540	65	67	76	548	556
70/90 – 17 M/C	1.60	69	558	74	76	86	566	574
80/90 – 17 M/C	1.85	80	576	86	88	100	586	594
90/90 – 17 M/C	2.15	90	594	96	99	113	606	614
100/90 – 17 M/C	2.50	101	612	108	111	126	624	634
110/90 – 17 M/C	2.50	109	630	117	120	136	644	654
120/90 – 17 M/C	2.75	119	648	127	131	149	664	674
130/90 – 17 M/C	3.00	129	666	138	142	161	682	694
140/90 – 17 M/C	3.50	142	684	152	156	178	702	714
150/90 – 17 M/C	3.50	150	702	161	165	188	720	732
70/90 – 18 M/C	1.60	69	583	74	76	86	591	599
80/90 – 18 M/C	1.85	80	601	86	88	100	611	619
90/90 – 18 M/C	2.15	90	619	96	99	113	631	639
100/90 – 18 M/C	2.50	101	637	108	111	126	649	659
110/90 – 18 M/C	2.50	109	655	117	120	136	669	679
120/90 – 18 M/C	2.75	119	673	127	131	149	689	699
130/90 – 18 M/C	3.00	129	691	138	142	161	707	719
140/90 – 18 M/C	3.50	142	709	152	156	178	727	739
70/90 – 19 M/C	1.60	69	609	74	76	86	617	625
80/90 – 19 M/C	1.85	80	627	86	88	100	637	645
90/90 – 19 M/C	2.15	90	645	96	99	113	657	665
100/90 – 19 M/C	2.50	101	663	108	111	126	675	685
110/90 – 19 M/C	2.50	109	681	117	120	136	695	705
120/90 – 19 M/C	2.75	119	699	127	131	149	715	725
130/90 – 19 M/C	3.00	129	717	138	142	161	733	745
70/90 – 21 M/C	1.60	69	659	74	76	86	667	675
80/90 – 21 M/C	1.85	80	677	86	88	100	687	695
90/90 – 21 M/C	2.15	90	695	96	99	113	707	715
100/90 – 21 M/C	2.50	101	713	108	111	126	725	735

[a] For appropriate tyre size designation, see 4.3.

[b] Maximum overall diameters are related to service up to 150 km/h.

[c] Radial-ply tyres.

[d] Diagonal-ply and bias-belted tyres.

Table 4 — Tyre dimensions (design and in-service) — 90 series tyres with nominal rim diameter codes 12 and below

Dimensions in millimetres

Tyre size designation [a]	Measuring rim width code	Design tyre		In-service [b]	
		Section width S	Overall diameter D_o	Maximum overall width W_{max}	Maximum overall diameter $D_{o,max}$
60/90 – 8	1.50	61	311	66	319
70/90 – 8	1.60	69	329	75	337
80/90 – 8	1.85	80	347	86	357
90/90 – 8	2.15	90	365	97	377
100/90 – 8	2.50	101	383	109	395
110/90 – 8	2.50	109	401	118	415
120/90 – 8	2.75	119	419	129	435
130/90 – 8	3.00	129	437	139	453
60/90 – 10	1.50	61	362	66	370
70/90 - 10	1.60	69	380	75	388
80/90 – 10	1.85	80	398	86	408
90/90 – 10	2.15	90	416	97	428
100/90 – 10	2.50	101	434	109	446
110/90 – 10	2.50	109	452	118	466
120/90 – 10	2.75	119	470	129	486
130/90 – 10	3.00	129	488	139	504
60/90 – 12	1.50	61	413	66	421
70/90 – 12	1.60	69	431	75	439
80/90 – 12	1.85	80	449	86	459
90/90 – 12	2.15	90	467	97	479
100/90 – 12	2.50	101	485	109	497
110/90 – 12	2.50	109	503	118	517
120/90 – 12	2.75	119	521	129	537
130/90 – 12	3.00	129	539	139	555

[a] For appropriate tyre size designation, see 4.3.

[b] Tread type A and B.