INTERNATIONAL STANDARD

ISO 6054-1

Second edition
1990-12-15

Motorcycle tyres and rims (Code-designated series) — Diameter codes 4 to 12 —

Part 1: Tyres

Pneumatiques et jantes pour motocycles (Série dont les dimensions sont désignées par des codes) — Codes de diamètre 4 à 12 —

Partie 1: Pneumatiques

Reference number
ISO 6054-1 : 1990 (E)

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.

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.

International Standard ISO 6054-1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves,* Sub-Committee SC 10, *Cycle, moped, motorcycle tyres and rims*.

This second edition cancels and replaces the first edition (ISO 6054-1 : 1981): requirements for a new tyre size, 2.75-10, have been added and the word "scooter" is no longer used.

ISO 6054 consists of the following parts, under the general title *Motorcycle tyres and rims (Code-designated series) — Diameter codes 4 to 12*:

— *Part 1: Tyres*

— *Part 2: Rims*

NOTE — When revised, ISO 4249-1, *Motorcycle tyres and rims (Code designated series) — Part 1: Tyres* will complement ISO 6054-1 for larger tyre sizes.

ISO 5751-1 : 1988, *Motorcycle tyres and rims (metric series) — Part 1: Tyres, all series* and ISO 5751-2 : 1988, *Motorcycle tyres and rims (metric series) — Part 2: Tyre series 100, 90, 80, 70 and 60* are parallel documents in the metric series.

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Motorcycle tyres and rims (Code-designated series) — Diameter codes 4 to 12 —

Part 1 : Tyres

Section 1: General

1.1 Scope

This part of ISO 6054 lays down the designation, dimensions, and load ratings for an inch-code-designated series of tyres for motorcycles, fitted on rims with a nominal diameter corresponding to the codes 4, 5, 6, 7, 8, 9, 10 and 12.

ISO 6054-2 deals with the requirements for rims.

1.2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 6054. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6054 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

1.3 Definitions

For the purposes of this part of ISO 6054-1, the definitions given in ISO 4223-1 apply.

Section 2 : Tyre designation and dimensions

2.1 Tyre designation

The designation shall be shown on the sidewall of the tyre and shall include the following markings for dimensional characteristics, which shall be close to each other: nominal section width and nominal rim diameter.

2.1.1 Nominal section width

The nominal section width shall be expressed by a code (see table 2 for code correlations).

2.1.2 Nominal rim diameter

The nominal rim diameter shall be expressed by a code (see table 1 for code correlations).

2.2 Tyre dimensions

2.2.1 Calculation of "design new tyre" dimensions

2.2.1.1 Design new tyre overall diameter, D_o

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:

$$D_o = D_r + 2H$$

For tyres marked with a nominal rim diameter code, see table 1 for the value of D_r to be used.

Table 1 — Nominal rim diameter code

Code	Nominal rim diameter, D_r mm
4	102
5	127
6	152
7	178
8	203
9	229
10	254
12	305

2.2.1.2 Design new tyre section height, H

The design new tyre section height, H, corresponds to the nominal section width, S_N, as shown in table 2.

Table 2 — Section height

Nominal section width, S_N Code	Section height, H, for rim codes	
	4-5-6-7 mm	8-9-10-12 mm
2.50	—	67,5
2.75	—	72,5
3.00	74,5	79,5
3.25	—	85
3.50	86	91,5
4.00	99,5	106
4.50	112	119,5
6.00	142	151,5

2.2.2 Calculation of "maximum overall tyre dimensions in service"

These dimensions include protective ribs, lettering, embellishments, manufacturing tolerances, special tread configuration and growth due to service.

2.2.2.1 Maximum overall width in service, W_{max}

The maximum overall width in service is equal to the product of the design new tyre section width S and the coefficient 1,08:

$$W_{max} = 1{,}08\,S$$

2.2.2.2 Maximum overall diameter in service, $D_{o,\,max}$

The maximum overall diameter in service is equal to the nominal rim diameter, D_r, plus twice the product of the design new tyre section height, H, and the coefficient 1,1:

$$D_{o,\,max} = D_r + 2{,}2H$$

2.2.3 Design new tyre and overall tyre dimensions

Table 3 gives design new tyre dimensions and overall tyre dimensions in service for the tyres of which the designation is as indicated in 2.1.[1)]

2.3 Method of measurement of tyre dimensions

Before measuring, tyres shall be mounted on the measuring rim, inflated to the recommended pressure, and allowed to stand for a minimum of 24 h at normal room temperature, after which the inflation pressure shall be readjusted to the original value.

If rims of other widths are used, the values of design new tyre section width, S, and maximum overall section in service, W_{max}, shall be changed by 40 % of the difference in rim width.

1) For information on metric tyres, see ISO 5751-1, ISO 5751-2 and ISO 5751-3.

Table 3a) — Tyre dimensions for rim diameter codes 4-5-6-7 — Design and in-service

Dimensions in millimetres

Tyre designation	Measuring rim width R_m	Design new tyre		In-service	
		Section width S	Overall diameter D_o	Maximum overall section width W_{max}	Maximum overall diameter $D_{o,\,max}$
3.00-5 3.00-7	63,5	84	276 327	91	291 342
3.50-4 3.50-5 3.50-6 3.50-7	63,5	92	274 299 324 350	99	291 316 341 367
4.00-5 4.00-7	63,5	105	326 377	113	346 397
4.50-6	76	120	376	130	398
6.00-6	101,5	154	436	166	464

Table 3b) — Tyre dimensions for rim diameter codes 8-9-10-12 — Design and in-service

Dimensions in millimetres

Tyre designation	Measuring rim width R_m	Design new tyre		In-service	
		Section width S	Overall diameter D_o	Maximum overall section width W_{max}	Maximum overall diameter $D_{o,\,max}$
2.50-8 2.50-9	38	65	338 364	70	352 378
2.75-9 2.75-10	44,5	71	374 399	77	389 414
3.00-8 3.00-10 3.00-12	63,5	84	362 413 464	91	378 429 480
3.25-12	63,5	88	475	95	492
3.50-8 3.50-9 3.50-10 3.50-12	63,5	92	386 412 437 488	99	404 430 455 506
4.00-8 4.00-10 4.00-12	63,5	105	415 466 517	113	436 487 538
4.50-12	76	120	544	130	568
6.00-9	101,5	154	532	166	562

Section 3 : Load ratings

3.1 Load capacities and inflation pressures

Table 4 gives the maximum load capacities for the corresponding inflation pressures, with reference to a speed of 100 km/h. For other maximum speeds, apply the percentage overload given in table 5.

The marking "PR" shown in table 4 is optional.

Table 4a) — Maximum load capacities and inflation pressures for rim diameter codes 4-5-6-7

Tyre designation	Maximum load capacities for inflation pressure of 175 kPa[1] kg	250 kPa[1] kg
3.00-5 2 PR	60	—
3.00-5 4 PR	—	85
3.00-7 2 PR	75	—
3.00-7 4 PR	—	105
3.50-4 2 PR	70	—
3.50-4 4 PR	—	100
3.50-5 2 PR	80	—
3.50-5 4 PR	—	110
3.50-6 2 PR	90	—
3.50-6 4 PR	—	125
3.50-7 2 PR	100	—
3.50-7 4 PR	—	140
4.00-5 2 PR	110	—
4.00-5 4 PR	—	145
4.00-7 2 PR	130	—
4.00-7 4 PR	—	180
4.50-6 2 PR	150	—
4.50-6 4 PR	—	200
6.00-6 2 PR	230	—
6.00-6 4 PR	—	310

1) 1 kPa = 10^{-2} bar

Table 4b) — Maximum load capacities and inflation pressures for rim diameter codes 8-9-10-12

Tyre designation	Maximum load capacities for inflation pressure of 175 kPa[1] kg	250 kPa[1] kg
2.50-8 2 PR	70	—
2.50-8 4 PR	—	100
2.50-9 2 PR	80	—
2.50-9 4 PR	—	105
2.75-9 2 PR	90	—
2.75-9 4 PR	—	120
2.75-10 4 PR	—	130
3.00-8 2 PR	95	—
3.00-8 4 PR	—	130
3.00-10 2 PR	110	—
3.00-10 4 PR	—	150
3.00-12 2 PR	130	—
3.00-12 4 PR	—	175
3.25-12 2 PR	140	—
3.25-12 4 PR	—	195
3.50-8 2 PR	120	—
3.50-8 4 PR	—	170
3.50-9 2 PR	135	—
3.50-9 4 PR	—	180
3.50-10 2 PR	145	—
3.50-10 4 PR	—	195
3.50-12 2 PR	165	—
3.50-12 4 PR	—	225
4.00-8 2 PR	160	—
4.00-8 4 PR	—	215
4.00-10 2 PR	185	—
4.00-10 4 PR	—	250
4.00-12 2 PR	210	—
4.00-12 4 PR	—	285
4.50-12 2 PR	255	—
4.50-12 4 PR	—	350
6.00-9 2 PR	320	—
6.00-9 4 PR	—	435

1) 1 kPa = 10^{-2} bar

Table 5 — Percentage overload at other maximum speeds

Maximum speed km/h	Overload %
50	30
70	16
80	10
90	5
100	0
110	− 7
120	− 15
130	− 25