International Standard 4249/1

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Motorcycle tyres and rims (Code designated series) — Part 1 : Tyres

Pneumatiques et jantes pour motocycles (Séries dont les dimensions sont désignées par des codes) — Partie 1 : Pneumatiques

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4249/1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*.

ISO 4249/1 was first published in 1978. This second edition cancels and replaces the first edition, the following points of which were revised in an Amendment published in 1982:

— title;

— new clause 0, Introduction;

— clause 1, Scope.

The reference to ISO 4223 has also been updated, as have some editorial details, in conformity with ISO/TC 31 current documents.

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INTERNATIONAL STANDARD ISO 4249/1-1985 (E)

Motorcycle tyres and rims (Code designated series) — Part 1: Tyres

0 Introduction

The tyres covered in this part of ISO 4249 are designated by the nominal section width and nominal rim diameter in the inch code. This designation indicates the origin of these tyres and does not indicate a preference for a unit not included in the SI system of units; it is merely a convenient designation for a series of motorcycle tyres which has been in existence for a long period of time.

This International Standard consists of three parts:

Part 1: Tyres.

Part 2: Tyre load ratings.

Part 3: Rims.

1 Scope

This part of ISO 4249 sets out the designation in use and the dimensions for an inch code designated series of tyres for motorcycles.

2 Field of application

This part of ISO 4249 applies to tyres used in highway service with a maximum speed of 150 km/h and fitted on rims with a nominal diameter corresponding to the codes 14 — 15 — 16 — 17 — 18 — 19 and 21.

It does not apply to tyres used at speeds above 150 km/h or in special conditions (off-road service, for example).

3 Reference

ISO 4223/1, *Definitions of some terms used in the tyre industry — Part 1: Tyres.*

4 Definitions

For definitions of terms relating to tyres, see ISO 4223/1.

5 Tyre designation

The tyre designation used in current practice is maintained for these tyres. This designation shall be shown on the sidewall of the tyre and shall include the following dimensional characteristics, expressed in accordance with 5.1 and 5.2, separated by a hyphen:

Nominal section width - Nominal rim diameter

5.1 Nominal section width

The nominal section width shall be expressed in inches (see table 2).

5.2 Nominal rim diameter

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

6 Tyre dimensions

6.1 Calculation of "design new tyre" dimensions

6.1.1 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 the values of D_r to be used, see table 1.

Table 1 — Nominal rim diameter code

Code	Nominal rim diameter D_r mm
14	356
15	381
16	406
17	432
18	457
19	483
21	533

6.1.2 Design new tyre section height (H)

See table 2.

Table 2 — Design new tyre section height (H) corresponding to nominal section width (S_N)

Nominal section width S_N in	Section height H mm
2.00	55
2.25	62
2.50	68
2.75	78
3.00	85
3.25	91
3.50	96
3.75	102
4.00	107
4.25	113
4.50	117
5.00	130

6.2 Calculation of maximum overall tyre dimensions in service

The dimensions shall include: protective ribs, lettering, embellishments, manufacturing tolerances, special tread configurations and growth due to service.

6.2.1 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 1,1:

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

6.2.2 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 b:

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

where

b = 1,1 for the section widths 2.00, 2.25, 2.50;

b = 1,08 for the section widths 2.75 and greater.

6.3 Values

Table 3 gives design new tyre dimensions and overall tyre dimensions in service for tyres of which the designation is as indicated in clause 5.

7 Method of measurement of tyre dimensions

Before measuring, tyres shall be mounted on the measuring rim, inflated to the recommended inflation 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.

Table 3 — Tyre dimensions — Design and in service

Tyre designation	Measuring rim width R_M in	Design new tyre		In service	
		Section width S mm	Overall diameter D_o mm	Maximum overall width W_{max} mm	Maximum overall diameter $D_{o,max}$ mm
2.00 - 14	1.20	52	466	57	478
2.00 - 17			542		554
2.00 - 19			593		605
2.25 - 14	1.60	61	480	67	492
2.25 - 15			505		517
2.25 - 16			530		542
2.25 - 17			556		568
2.25 - 18			581		593
2.25 - 19			607		619
2.50 - 14	1.60	65	492	72	506
2.50 - 15			517		531
2.50 - 16			542		556
2.50 - 17			568		582
2.50 - 18			593		607
2.50 - 19			619		633
2.50 - 21			669		683
2.75 - 14	1.85	75	512	83	524
2.75 - 15			537		549
2.75 - 16			562		574
2.75 - 17			588		600
2.75 - 18			613		625
2.75 - 19			639		651
2.75 - 21			689		701
3.00 - 14	1.85	80	526	88	540
3.00 - 15			551		565
3.00 - 16			576		590
3.00 - 17			602		616
3.00 - 18			627		641
3.00 - 19			653		667
3.00 - 21			703		717
3.25 - 14	2.15	89	538	98	552
3.25 - 15			563		577
3.25 - 16			588		602
3.25 - 17			614		628
3.25 - 18			639		653
3.25 - 19			665		679
3.25 - 21			715		729
3.50 - 14	2.15	93	548	102	564
3.50 - 15			573		589
3.50 - 16			598		614
3.50 - 17			624		640
3.50 - 18			649		665
3.50 - 19			675		691
3.50 - 21			725		741
3.75 - 18	2.15	99	661	109	677
3.75 - 19			687		703
4.00 - 16	2.15	104	620	114	638
4.00 - 18			671		689
4.00 - 19			697		715
4.25 - 17	2.15	108	658	119	676
4.25 - 18			683		701
4.25 - 19			709		727
4.50 - 17	2.15	111	666	122	684
4.50 - 18			691		709
5.00 - 16	3.00	129	666	142	686

Annex

Other existing maximum overall diameters

(This annex is given for information only.)

Certain series of tyres are currently being marketed which, while having the designation defined in this International Standard, present larger maximum overall diameters. These values are indicated in table 4 for information.

Table 4 — Other existing values

Tyre designation	Maximum overall diameter — Other existing values mm
3.25 - 16	615
3.25 - 17	640
3.25 - 18	665
3.25 - 19	690
3.50 - 14	575
3.50 - 16	626
3.50 - 17	651
3.50 - 18	677
3.50 - 19	702
3.50 - 21	753
3.75 - 19 T	699
4.00 - 18	711
4.00 - 19	736
4.25 - 18 T	711
4.50 - 18	740
5.00 - 16 T	703