INTERNATIONAL STANDARD

ISO 4249-3

Sixth edition
2010-11-15

Motorcycle tyres and rims (code-designated series) —

Part 3: **Rims**

Pneumatiques et jantes pour motocycles (séries dont les dimensions sont désignées par des codes) —

Partie 3: Jantes

Reference number
ISO 4249-3:2010(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

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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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4249-3 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 10, *Cycle, moped, motorcycle tyres and rims*.

This sixth edition cancels and replaces the fifth edition (ISO 4249-3:2004), which has been technically revised.

ISO 4249 consists of the following parts, under the general title *Motorcycle tyres and rims (code-designated series)*:

— *Part 1: Tyres*

— *Part 2: Tyre load ratings*

— *Part 3: Rims*

Motorcycle tyres and rims (code-designated series) —

Part 3:
Rims

1 Scope

This part of ISO 4249 specifies the rim dimensions for a selection of rims for motorcycle tyres. It stipulates only those rim contour dimensions necessary for tyre mounting, and for fitting the tyre to the rim.

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.

ISO 4249-1:1985, *Motorcycle tyres and rims (Code-designated series) — Part 1: Tyres*

3 Finish

3.1 Rim contour

The rim on the side of the tyre shall be smoothly contoured and free of sharp edges.

3.2 Rim valve hole

3.2.1 The rim valve hole shall be centred on the bottom of the rim well. On the tyre side, the edges shall be rounded or chamfered. On the hub side, the edges shall be free of burrs, which could damage the valve.

Dimensions and tolerances of valve holes shall be as shown in Figure 1.

3.2.2 The rim hole shall have a diameter of $8{,}3^{+0{,}5}_{-0{,}1}$ mm See Figure 1 a).

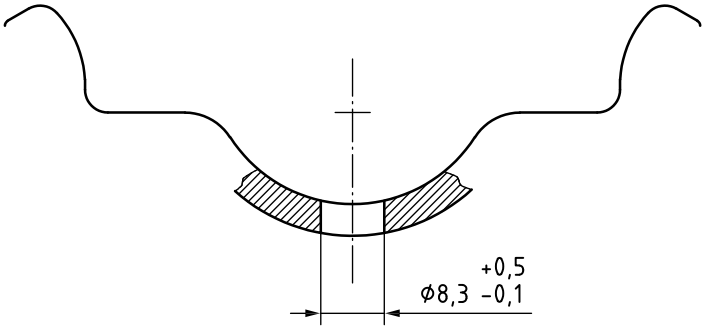
For the fitment of tubeless valves, a circumferential flat area of at least 14,5 mm is required on the tyre side of the rim. The maximum thickness of the rim at the rim hole shall be 9,4 mm. See Figure 1 b).

At the request of the motorcycle manufacturer, rim holes of $11{,}3^{+0{,}4}_{0}$ mm diameter may be provided; in this case, the flat area around the hole shall be at least 19 mm diameter.

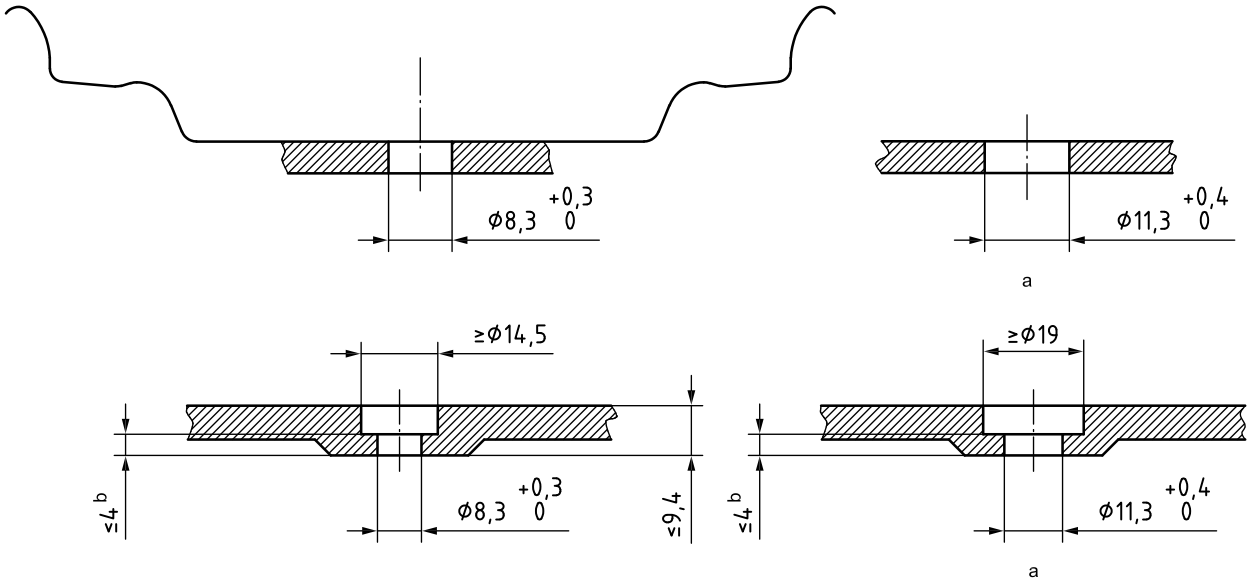
For the possibility of off-centre positioning, see Figure 1 c).

3.2.3 The rim shall be counter-bored at the valve hole to reduce the thickness to 4 mm maximum for seating snap-in valves.

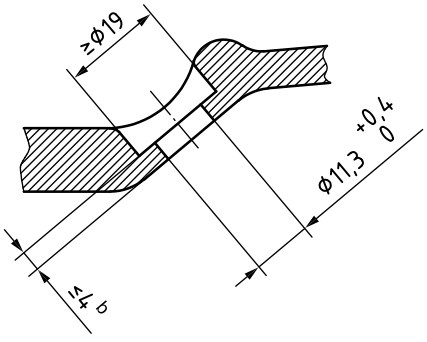
Dimensions in millimetres



a) Tube-type valve



b) Tubeless valves



c) Off-centre (optional)[c]

[a] Optional.

[b] See 3.2.3.

[c] For rim codes MT 3.00 and larger, if the well contour offers sufficient space for the location of the flat area, the valve hole may be positioned on the sidewall of the well.

Figure 1 — Valve hole dimensions

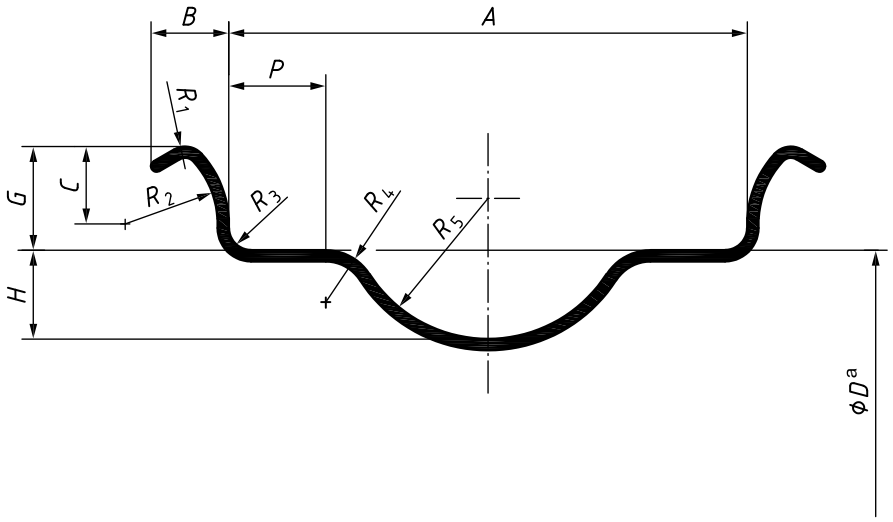
4 Designation

The rim shall be designated by its nominal rim diameter code and nominal rim width (for example, 18 × 1.85 or 17 M/C × MT 3.50). See also ISO 3911.

5 Cylindrical bead seat

5.1 Rim contours

Dimensions and tolerances of the cylindrical bead seat rims shall be as shown in Figure 2 and as given in Table 1.



a See Table 2.

Figure 2 — Cylindrical bead seat rims

Table 1 — Dimensions of cylindrical bead seat rims

Dimensions in millimetres

Nominal rim width	A	B	G	H	P	C	R_2	R_1	R_3	R_4	R_5
inches	$^{+1}_{-0,5}$	min.	± 0,5	$^{+1}_{-0,5}$	min.			min.	max.	min.	min.
1.10	28	5	7	7	3	5	5,5	1,5	1,5	5	7
1.20	30,5	5,5	9			5,5	6				
1.35	34	6,5	10	7,5	3,5	6	6,5	2			
1.40	36			8							10
1.50	38	7,5	10,5		4	6,5	7		2	5,5	11,5
1.60	40,5		12		4,5	7,5	8				13
1.85	47	8,5	14	9	5	10,5	12,5			6	15
2.15	55				7,5					7	18,5
2.50	63,5	9,5							3		19
2.75	70	10,5		12	11			3			
3.00	76										

5.2 Rim diameters

Nominal rim diameter code, specified diameters and circumferences shall be as given in Table 2.

Table 2 — Specified rim diameters and circumferences for cylindrical bead seat rims

Dimensions in millimetres

Nominal rim diameter code[a]	Specified rim diameter D	Specified rim circumference πD $^{+2}_{-0,5}$
14	357,1	1 121,9
15	382,5	1 201,7
16	405,6	1 274,2
17	433,3	1 361,2
18	458,7	1 441
19	484,1	1 520,8
20	509,5	1 600,6
21	534,9	1 680,4
22	558,8	1 755,5
23	584,2	1 835,3

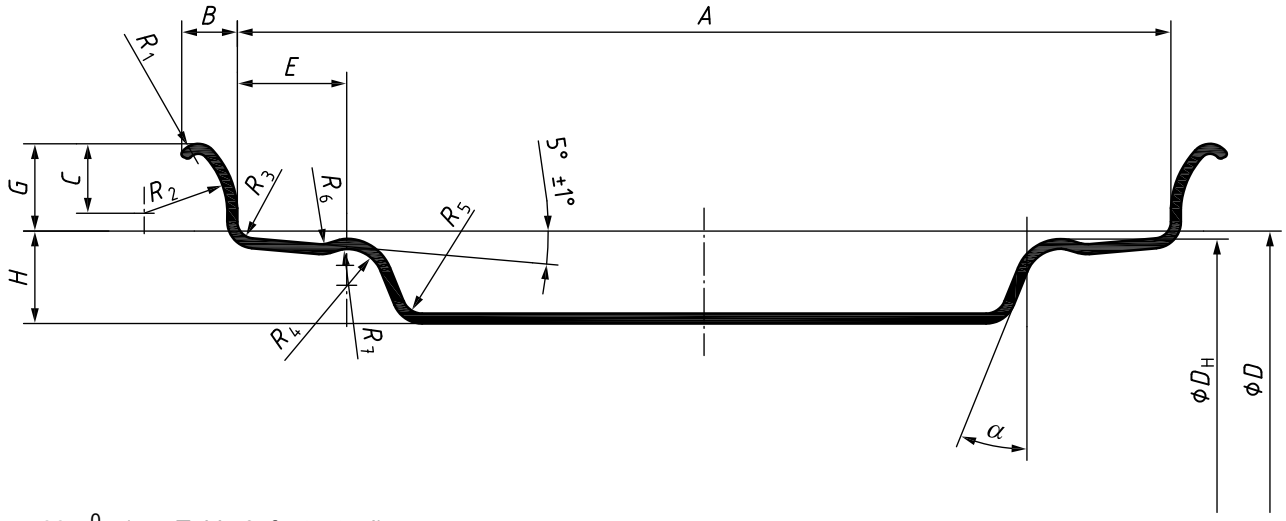
[a] The suffix M/C is optionally allowed.

6 Tapered bead seat rims (MT type)

6.1 Rim contours

Dimensions and tolerances of tapered bead seat rims shall be as shown in Figure 3 and as given in Table 3.

The well contours of MT 2.50 and wider rims, however, are permitted to be between those shown in Figure 3 (basic contours) and Figure 4.



$\alpha = 22° {}^{0}_{-5°}$ (see Table 3, footnote d).

NOTE For D and D_H, see 6.3.

Figure 3 — 5° tapered bead seat rim contours (MT type)

Table 3 — Dimensions of tapered bead seat rims

Dimensions in millimetres

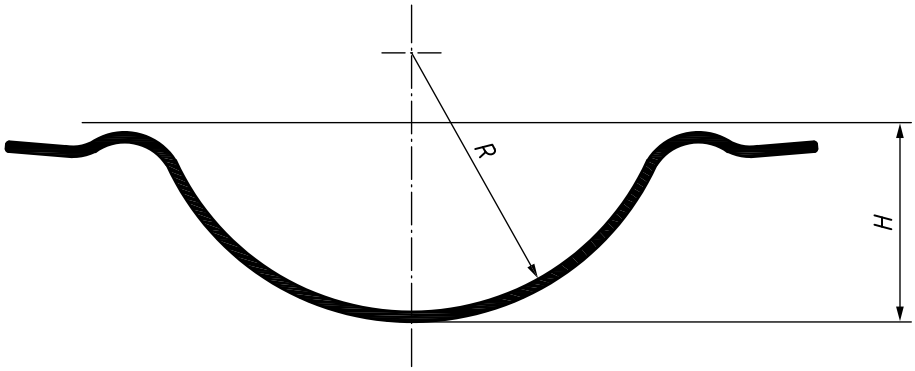
Nominal rim width code	A	tol.	B	C	E[a]	tol.	G	tol.	H	R_1	R_2	R_3	R_4	R_5[b]	R_6	R_7
			min.						min.	min.		max.	± 0,5	min.	± 0,5	± 0,5
MT 1.50	38	$^{+1}_{-0,5}$	7,5	6,5	—	—	10	± 0,5	8	3	7	2,5	—	3	—	—
MT 1.60	40,5		9	8,5	10	$^{+0,5}_{0}$	12				12,5		2,5		3	2,5
MT 1.85	47			10,5	12[c]		14		9				3[d]			
MT 2.15	55				13	$^{+2}_{0}$										
MT 2.50	63,5	$^{+1,5}_{-1}$						$^{+1}_{-0,5}$	12				5,5			
MT 2.75	70				14											
MT 3.00	76				15				13							
MT 3.50	89															
MT 3.75	95				16											
MT 4.00	101,5															
MT 4.25	108															
MT 4.50	114,5															
MT 5.00	127															
MT 5.50	140															
MT 6.00	152,5															
MT 6.25	159															
MT 6.50	165															
MT 7.00	178															
MT 7.50	190,5															
MT 8.00	203															
MT 8.50	216															
MT 9.00	228,5															
MT 9.50	241,5															
MT 10.00	254															
MT 10.50	266,5															
MT 11.00	279,5															
MT 11.50	292															
MT 12.00	305															
MT 12.50	317,5															
MT 13.00	330															
MT 13.50	343															

a E = hump location. See Figure 5 and Table 4 for rims without humps.

b For MT 2.50 and larger rims, the well contour may be a rounded shape with R = full radius. See Option 1, Figure 4.

c For MT 1.85, $10{,}5^{+0{,}5}_{-0}$ is also permitted for better tyre mounting.

d $5 \pm 0{,}5$ of R_4 for MT 2.15 is also permitted. In that case, α shall be $17° \pm 2{,}5°$.



Key

R full radius

Figure 4 — Well contour — Option 1

6.2 Bead seat contours

Bead seat contours for rims without hump shall be as shown in Figure 5 and as given in Table 4.

Rims without hump shall only be used with tyres for tube-type applications.

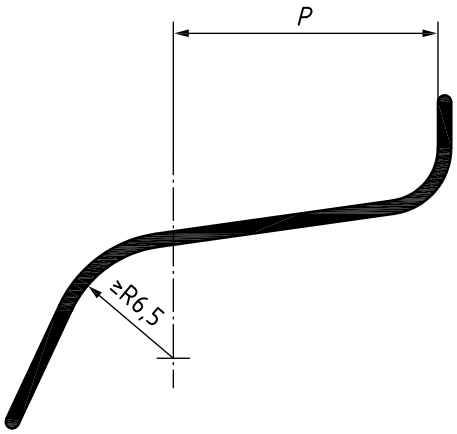


Figure 5 — Bead seat contours for rims without hump

Table 4 — Bead seat contours for rims without hump

Dimensions in millimetres

Nominal rim width code	P $^{+2}_{0}$
MT 1.50	4
MT 1.60	5
MT 1.85	8
MT 2.15	11

6.3 Rim diameter and hump circumference

The nominal rim diameter code, specified rim diameter and hump circumference shall be as given in Table 5.

Annex A provides a procedure that may be used for determining the measuring rim diameter and the measuring rim circumference when an 8 mm ball tape is used for checking MT rims.

Table 5 — Specified rim diameters and hump circumferences for MT rim contours

Dimensions in millimetres

Nominal rim diameter code	Specified rim diameter[a] D	Hump circumference πD_H $^{+2}_{-1}$
13 M/C	332,2	1 041,5
14 M/C	357,6	1 121,3
15 M/C	383	1 201,1
16 M/C	406	1 273,4[b]
17 M/C	433,8	1 360,7
18 M/C	459,2	1 440,5
19 M/C	484,6	1 520,3
20 M/C	510	1 600,1
21 M/C	535,4	1 679,9
23 M/C	586,2	1 839,5
24 M/C	611,6	1 919,3

NOTE The suffix M/C for nominal rim diameter codes 16 M/C and above is optional for rims manufactured before May 2003.

[a] The tolerance on the bead seat periphery is $^{+1,5}_{-0,5}$ mm.

[b] For code 16 M/C, the tolerance on the bead seat periphery is ± 1 mm.

7 Permitted rim widths

Permitted rim widths for the code-designated series of motorcycle tyres shall be in accordance with Table 6.

NOTE For permitted rim widths for the metric series of motorcycle tyres, see ISO 5751-3.

Table 6 — Permitted rim widths

Tyre section	Permitted rim widths[a]
2.00	1.10; 1.20; 1.35
2.25	1.20; 1.35; 1.40; 1.50; 1.60
2.50	1.35; 1.40; 1.50; 1.60
2.75	1.40; 1.50; 1.60; 1.85
3.00	1.60; 1.85; 2.15
3.25	1.85; 2.15; 2.50
3.50	1.85; 2.15; 2.50
3.75	1.85; 2.15; 2.50
4.00	2.15; 2.50; 2.75; 3.00
4.25	2.15; 2.50; 2.75; 3.00
4.50	2.15; 2.50; 2.75; 3.00
5.00	2.50; 2.75; 3.00; 3.50

[a] MT contours may also apply. The measuring rim width for a given tyre section shall be obtained in accordance with ISO 4249-1:1985, Table 3.

Annex A
(informative)

Rim circumference measurement — Tapered bead seat (MT type) rims

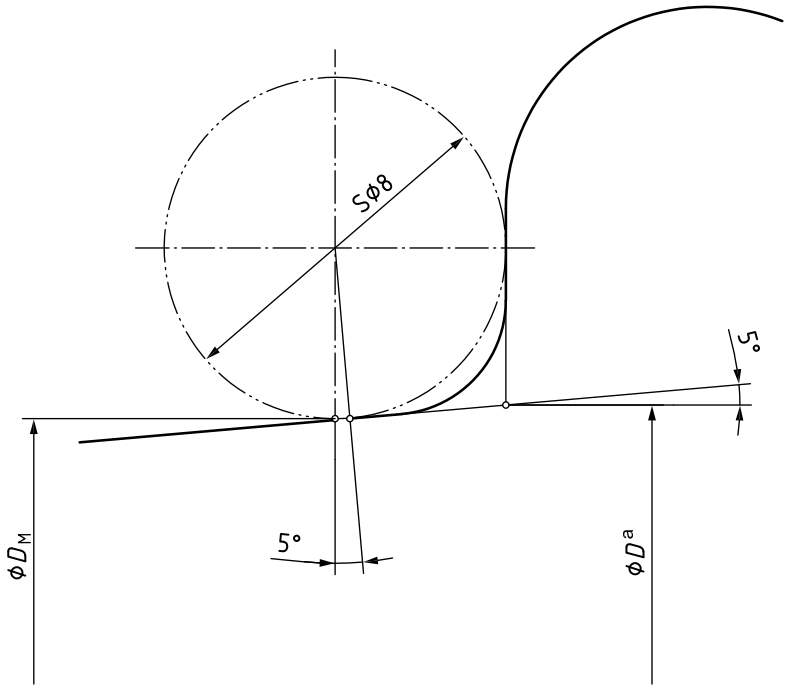
The bead seat rim circumference measurements shall be made using a tape gauge the length of which is related to a mandrel with diameter D_M.

The tolerance on this diameter is $^{0}_{-0,15}$ mm.

To ensure accuracy, each bead seat shall be measured separately.

When an 8 mm ball tape is used for checking tapered bead seat rims, the dimensions given in Figure A.1 and Table A.1 apply.

Dimensions in millimetres



[a] Specified rim diameter.

Figure A.1 — Rim circumference measurement

Table A.1 — Rim circumference measurement

Dimensions in millimetres

Nominal rim diameter code	Diameter D_M	Circumference πD_M $^{+1,5}_{-0,5}$
13 M/C	331,53	1 041,5
14 M/C	356,93	1 121,3
15 M/C	382,33	1 201,1
16 M/C	405,33	1 273,4[a]
17 M/C	433,13	1 360,7
18 M/C	458,53	1 440,5
19 M/C	483,93	1 520,3
20 M/C	509,33	1 600,1
21 M/C	534,73	1 679,9
23 M/C	584,03	1 834,8

[a] For code 16 M/C, the tolerance on the circumference is ± 1 mm.

Bibliography

[1] ISO 3911, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

[2] ISO 4000-2, *Passenger car tyres and rims — Part 2: Rims*

[3] ISO 4249-2, *Motorcycle tyres and rims (Code-designated series) — Part 2: Tyre load ratings*

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

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