

INTERNATIONAL STANDARD

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4249-3

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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 4249-3:1997(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 4249-3 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 4249-3:1990), of which it constitutes a technical revision.

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*

Annexes A and B of this part of ISO 4249 are for information only.

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Motorcycle tyres and rims (coded-designated series) —

Part 3: Rims

1 Scope

This part of ISO 4249 specifies the rim dimensions for a selection of rims for an inch code-designated series of motorcycle tyres. It sets only those rim contour dimensions necessary for tyre mounting, and for fitting the tyre to the rim.

NOTE — The tyres covered in ISO 4249-1 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.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 4249. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4249 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3911:—¹⁾, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*.

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 given in figure 1.

3.2.2 The rim hole shall have a diameter of $8,3^{+0,3}_0$ 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 is 9,4 mm. See figure 1 b).

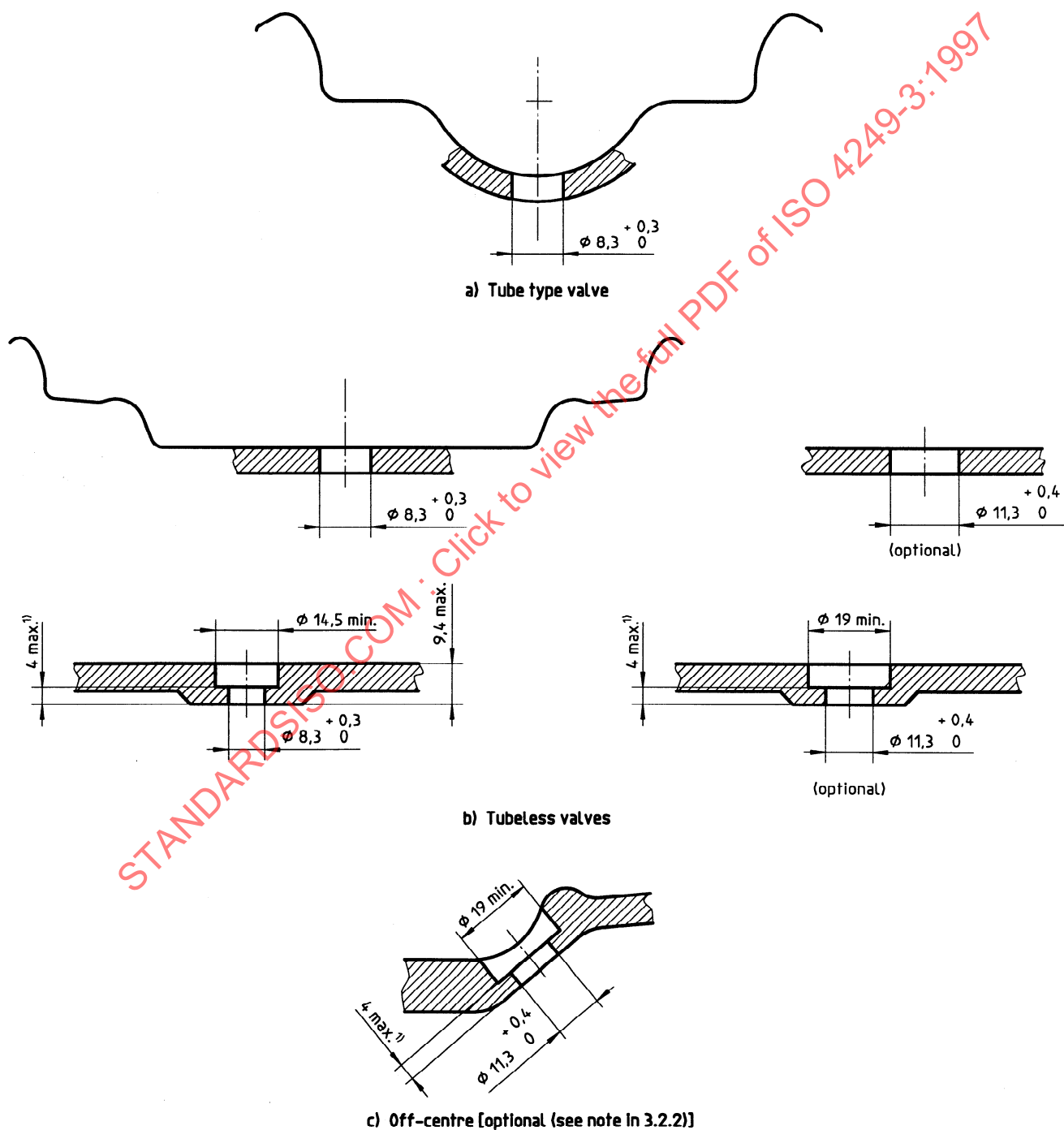
1) To be published. (Revision of ISO 3911:1977)

At the request of motorcycle manufacturers, rim holes of $11,3^{+0,4}_0$ mm diameter may be provided: in this case, the flat area around the hole shall be 19 mm diameter.

NOTE — 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.

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



1) See 3.2.3.

Figure 1 — Valve hole dimensions

4 Designation

The rim shall be designated by its diameter code and nominal rim width (for example, 18×1.85). (See also ISO 3911.)

5 Cylindrical bead seat

5.1 Rim contours

Dimensions and tolerances of the cylindrical bead seat rims shall be as given in figure 2 and table 1.

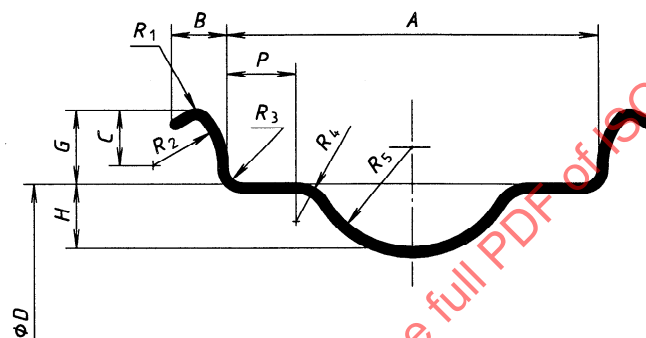


Figure 2 — Cylindrical bead seat rims

Table 1 — Dimensions of cylindrical bead seat rims

Dimensions in millimetres

Nominal rim width in	A ⁺¹ -0,5	B min.	G ± 0,5	H ⁺¹ -0,5	P min.	C	R ₂	R ₁ min.	R ₃ max.	R ₄ min.	R ₅ 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				2	5,5	10
1.40	36			8		4	6,5							
1.50	38	7,5	10,5		4,5		7,5		8	11,5				
1.60	40,5		12	9		5	10,5		12,5		6			15
1.85	47	8,5	14		7,5	19								
2.15	55							9,5						
2.50	63,5	10,5			12					11				
2.75	70	10,5		12	11									

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

Dimensions in millimetres

Nominal rim diameter code	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

6 Tapered bead seat rims (MT type)

6.1 Rim contours

Dimensions and tolerances of tapered bead seat rims shall be as given in figure 3 and table 3.

Optional well contours are given in figures 4 and 5, and table 4.

6.2 Bead seat contours

Bead seat contours for rims without hump shall be as given in figure 6 and table 5.

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

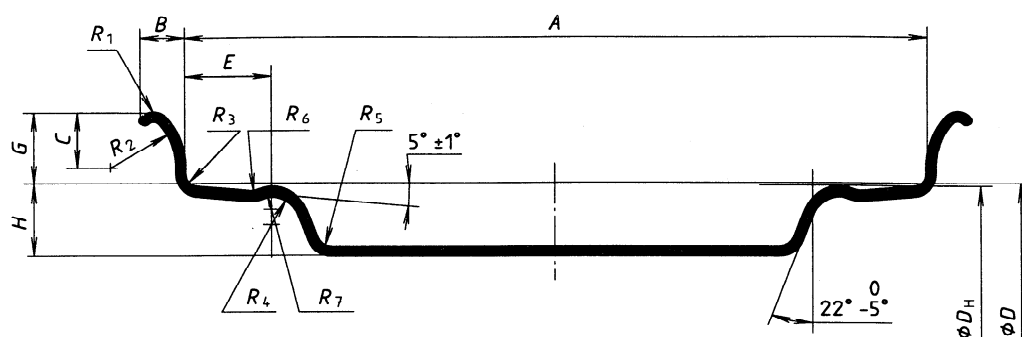


Figure 3 — 5° Tapered bead seat rim contours (MT type)

Table 3 — Dimensions of tapered bead seat rims

Dimensions in millimetres

Nominal rim width code	A	B	C	E ¹⁾		G	H	R ₁	R ₂	R ₃	R ₄	R ₅ ²⁾	R ₆	R ₇			
	tol.	min.			tol.	tol.	min.	min.		max.	± 0,5	min.	± 0,5	± 0,5			
MT 1.50	38	+1 -0,5	7,5	6,5	—	—	10	8	7		—		—	—			
MT 1.60	40,5			8,5	10	+0,5 0	12				± 0,5		9	2,5			
MT 1.85	47				12									12			3
MT 2.15	55				13												12
MT 2.50	63,5	+1,5 -1	9	10,5	+2 0	14	+1 -0,5	13	3	12,5	2,5	3	3	2,5			
MT 2.75	70														14		
MT 3.00	76														15		
MT 3.50	89														16		
MT 3.75	95																
MT 4.00	101,5																
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																

1) E = Hump location.

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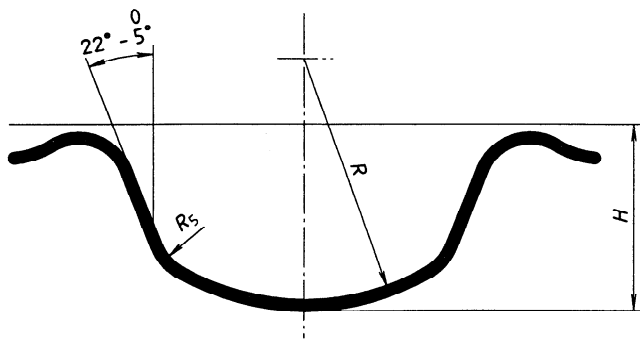


Figure 4 — Well contour — Option 1

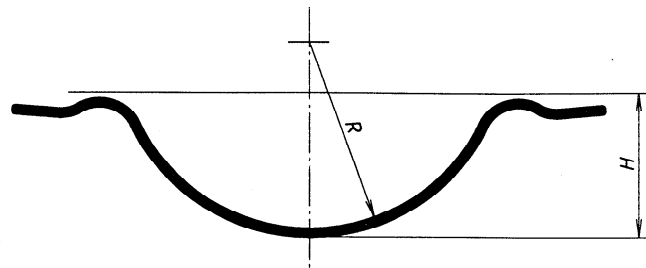
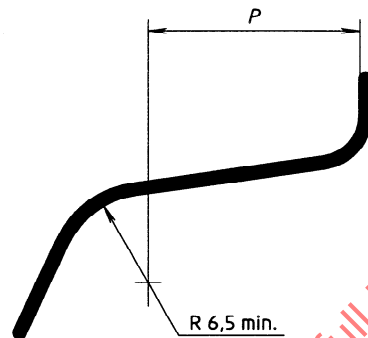
NOTE — R = full radius

Figure 5 — Well contour — Option 2



Dimensions in millimetres

Figure 6 — Bead seat contours for rims without hump

Table 4 — Optional well contour — Option 1

Dimensions in millimetres

Nominal rim width code	R_5 ¹⁾ min.	R min.
MT 1.85	3	20
MT 2.15		
MT 2.50		30
MT 2.75		
MT 3.00		40
MT 3.50 ²⁾		
1) For MT 2.50 and larger rims, the well contour may be a rounded shape with R = full radius. (See option 2, figure 5.) 2) Well contour dimensions apply also for wider nominal width codes.		

Table 5 — 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, the specified rim diameter and the hump circumference shall be as given in table 6.

Annex A provides information concerning the measuring rim diameter and the measuring rim circumference when an 8 mm ball tape is used for checking MT rims.

Table 6 — Specified rim diameters and hump circumferences

Dimensions in millimetres

Nominal rim diameter code	Specified rim diameter ¹⁾ <i>D</i>	Hump circumference πD_H +2 -1
13 M/C ²⁾	332,2	1 041,5
14 M/C ²⁾	357,6	1 121,3
15 M/C ²⁾	383	1 201,2
16	406 ³⁾	1 273,4
17	433,8	1 360,7
18	459,2	1 440,5
19	484,6	1 520,3
20	510	1 600,1
21	535,4	1 679,9
23	584,7	1 837,8
1) The tolerance on the bead seat periphery is $\begin{smallmatrix} +1,5 \\ -0,5 \end{smallmatrix}$ mm. 2) These rims are of the same nominal diameter but are different from those specified in ISO 4000-2. To prevent confusion, rims up to code 15 and tyres shall be identified by the suffix "M/C". The same suffix "M/C" is recommended also for rim diameters 16 and above where specified rim diameters differ from those of ISO 4000-2 and ISO 4251-3. 3) For code 16, 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 are given in table 7.

Table 7 — Permitted rim widths

Tyre section	Permitted rim width ¹⁾
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

1) MT contours may also apply. To obtain the measuring rim width for a given tyre section, see table 3 of ISO 4249-1:1985.

Annex A (informative)

Rim circumference measurement — Tapered bead seat rims (see 6.3)

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 the mandrel 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 shall apply.

Dimensions in millimetres

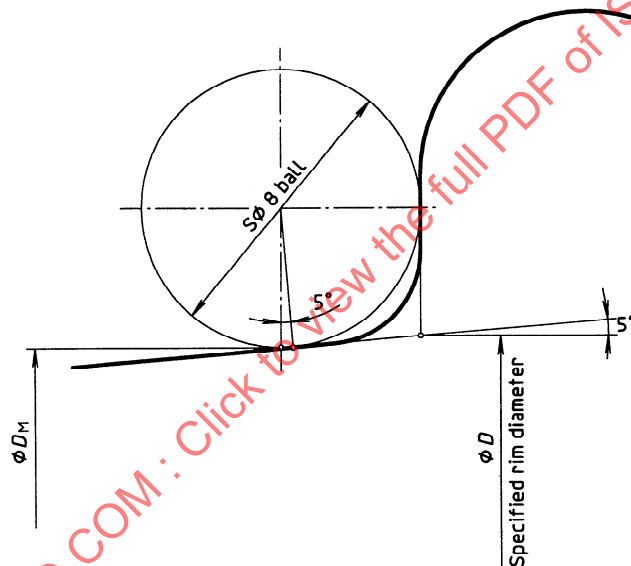


Figure A.1 — Rim circumference measurement

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 ¹⁾	331,53	1 041,5
14 M/C ¹⁾	356,93	1 121,3
15 M/C ¹⁾	382,33	1 201,1
16	405,33	1 273,4 ²⁾
17	433,13	1 360,7
18	458,53	1 440,5
19	483,93	1 520,3
20	509,33	1 600,1
21	534,73	1 679,9
23	584,03	1 834,8

1) These rims are of the same nominal diameter but are different from those specified in ISO 4000-2. To prevent confusion, rims up to code 15 and tyres shall be identified by the suffix "M/C". The same suffix "M/C" is recommended also for rim diameters 16 and above where specified rim diameters differ from those of ISO 4000-2.

2) For code 16, the tolerance on the circumference is ± 1 mm.