

BS ISO 4249-3:2010



BSI Standards Publication

# Motorcycle tyres and rims (code-designated series)

## Part 3: Rims

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### National foreword

This British Standard is the UK implementation of ISO 4249-3:2010. It supersedes BS ISO 4249-3:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AUE/4, Tyres and wheels for motor vehicles.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Sixth edition  
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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*



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## Contents

Page

Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Finish .....	1
3.1 Rim contour .....	1
3.2 Rim valve hole .....	1
4 Designation .....	3
5 Cylindrical bead seat.....	3
5.1 Rim contours .....	3
5.2 Rim diameters.....	4
6 Tapered bead seat rims (MT type) .....	4
6.1 Rim contours .....	4
6.2 Bead seat contours .....	6
6.3 Rim diameter and hump circumference.....	7
7 Permitted rim widths .....	7
Annex A (informative) Rim circumference measurement — Tapered bead seat (MT type) rims.....	9
Bibliography.....	11



## Foreword

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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).

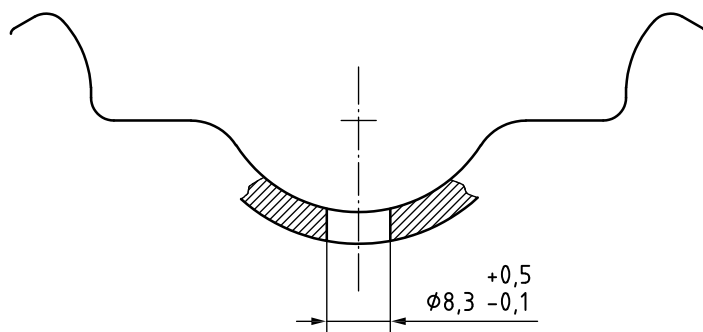
At the request of the motorcycle manufacturer, rim holes of  $11,3^{+0,4}_0$  mm diameter may be provided; in this case, the flat area around the hole shall be at least 19 mm diameter.

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

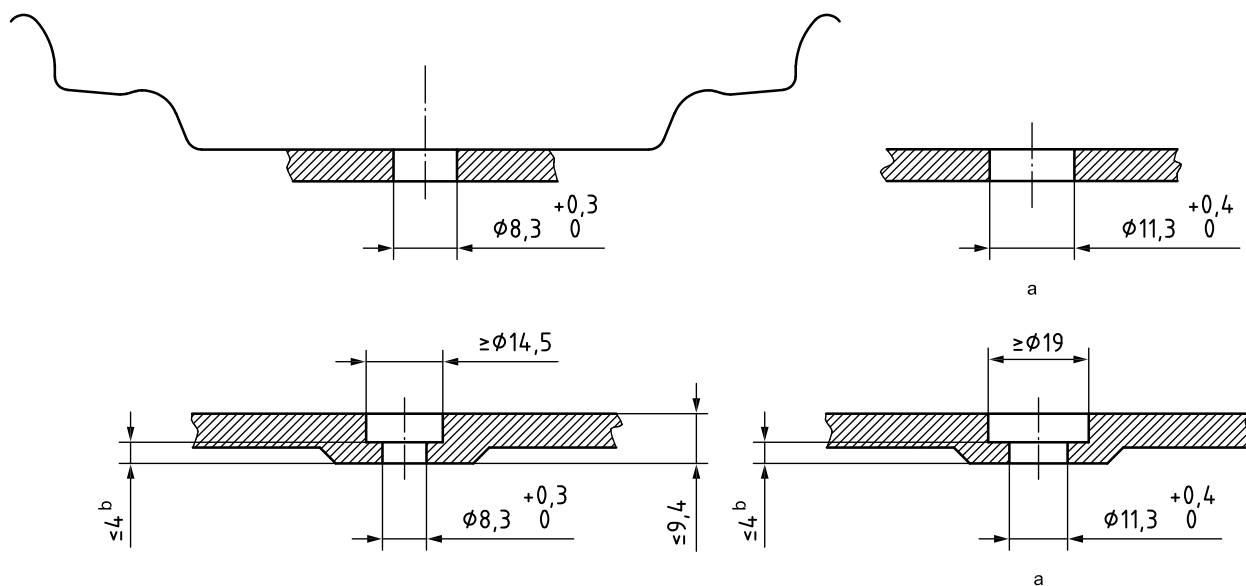
**3.2.3** The rim shall be counter-bored at the valve hole to reduce the thickness to 4 mm maximum for



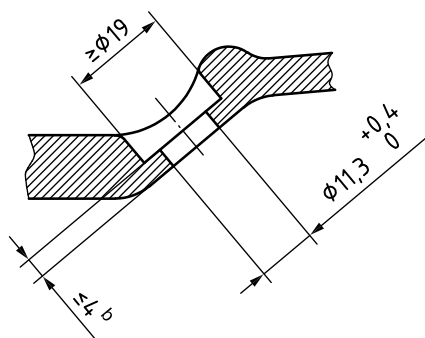
Dimensions in millimetres



a) Tube-type valve



b) Tubeless valves



c) Off-centre (optional)<sup>c</sup>

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 of the well.

Figure 1 — Valve hole dimensions

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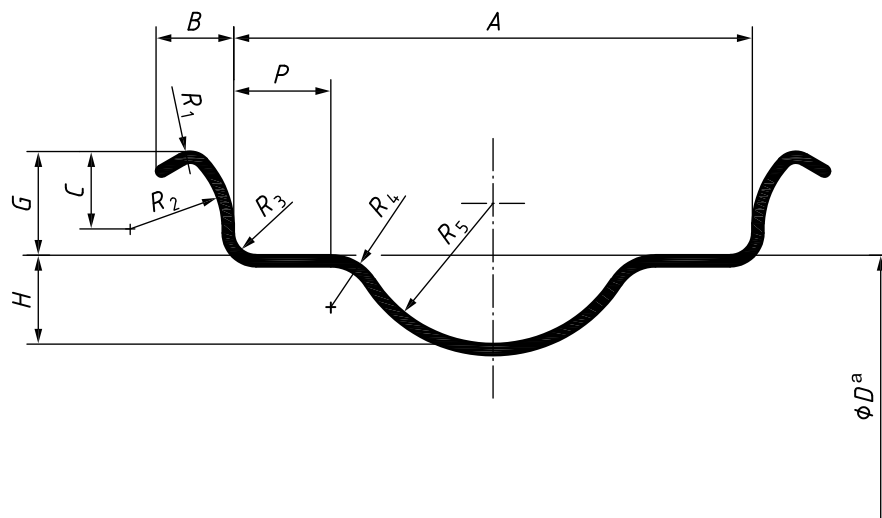
## 4 Designation

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.



<sup>a</sup> 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 <sub>2</sub>	R <sub>1</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>
inches	<sup>+1</sup> <sub>-0,5</sub>	min.	± 0,5	<sup>+1</sup> <sub>-0,5</sub>	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	2	5,5	10
1.40	36			8							
1.50	38	7,5	10,5	9	5	10,5	12,5	2	2	6	11,5
1.60	40,5	12	4,5		7,5						8
1.85	47	8,5	14	9	7,5	10,5	12,5	2	2	6	15
2.15	55				11						7,5
2.50	63,5	9,5	14	12	11	10,5	12,5	3	3	7	19

## 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 <sup>a</sup>	Specified rim diameter $D$	Specified rim circumference $\pi D$ +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

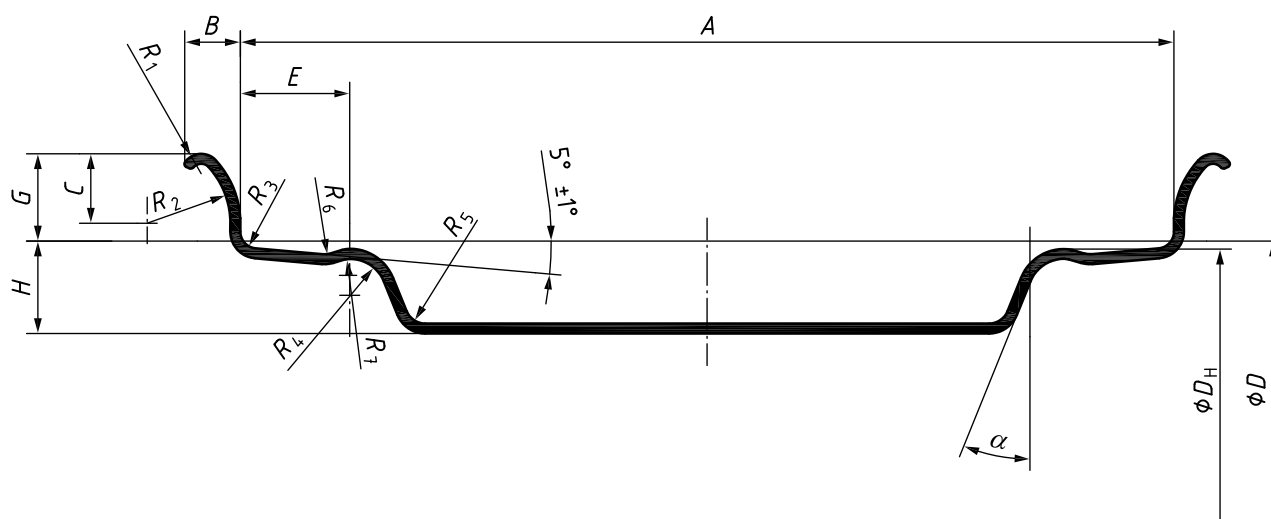
<sup>a</sup> The suffix M/C is optionally allowed.

## 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.



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

— 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 min.	C	E <sup>a</sup>		G		H min.	R <sub>1</sub> min.	R <sub>2</sub>	R <sub>3</sub> max.	R <sub>4</sub> ± 0,5	R <sub>5</sub> <sup>b</sup> min.	R <sub>6</sub> ± 0,5	R <sub>7</sub> ± 0,5	
		tol.				tol.		tol.									
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	14	9		12,5	2,5	3 <sup>d</sup>		5,5	3	2,5
MT 1.85	47				10,5		12 <sup>c</sup>										
MT 2.15	55	+1,5 -1	9	8,5	13	+2 0	14	± 0,5	12	3	7	2,5	5,5	3	—	—	
MT 2.50	63,5				14				13								
MT 2.75	70				14				13								
MT 3.00	76				15				13								
MT 3.50	89				16				13								
MT 3.75	95																
MT 4.00	101,5				16				13								
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																

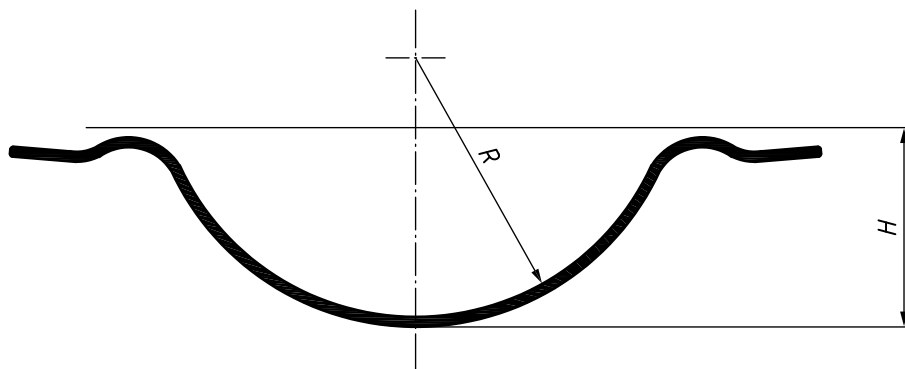
<sup>a</sup> E = hump location. See Figure 5 and Table 4 for rims without humps.

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

<sup>c</sup> For MT 1.85, 40,5<sup>+0,5</sup> is also permitted for better tyre mounting.

Also permitted. In that case, α shall be 17° ± 2,5°.





**Key**

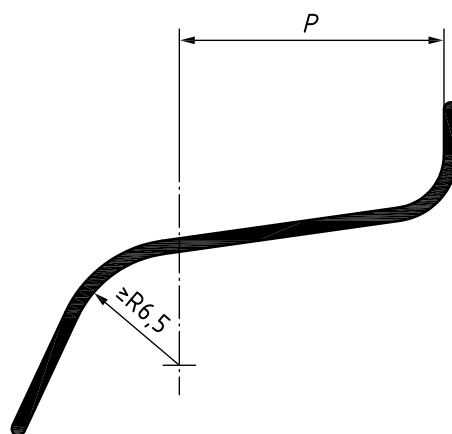
*R* full radius

**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	<i>P</i> +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 <sup>a</sup> $D$	Hump circumference $\pi D_H$ $+2$ $-1$
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 <sup>b</sup>
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.

<sup>a</sup> The tolerance on the bead seat periphery is  $+1,5$   
 $-0,5$  mm.

<sup>b</sup> For code 16 M/C, the tolerance on the bead seat periphery is  $\pm 1$  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 <sup>a</sup>
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

<sup>a</sup> 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)

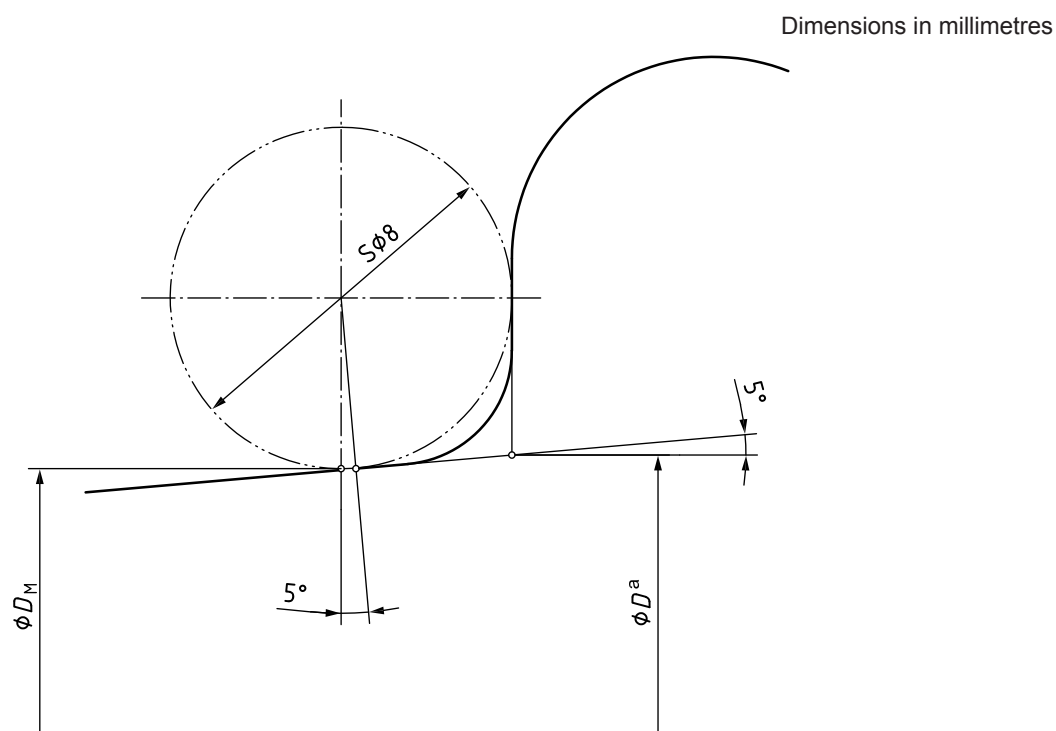
### Rim circumference measurement — Tapered bead seat (MT type) rims

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.



<sup>a</sup> 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 $\pi D_M$ +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 <sup>a</sup>
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

<sup>a</sup> For code 16 M/C, the tolerance on the circumference is  $\pm 1$  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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