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Earth-mover tyres and rims —

Part 3: Rims

Pneumatiques et jantes pour engins de terrassement —
Partie 3: Jantes

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC TC 31, *Tyres, rims and valves*, Subcommittee SC 6, *Off-the-road tyres and rims*.

This fifth edition cancels and replaces the fourth edition (ISO 4250-3:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

— in Table 1, new codes were added and obsolete codes were removed;

— in Table 2, CR rim width codes were added;

— Table 3 and Figure 3 were added;

— in Table A.1, new sizes were added and obsolete sizes were removed.

A list of all parts in the ISO 4250 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO 4250 consists of three parts (ISO 4250-1, ISO 4250-2 and this document, i.e. ISO 4250-3) that lay down the technical elements relating to designation and dimensions of tyres and rims for earth-moving machinery. It also provides load tables for these tyres.

Earth-mover tyres and rims —

Part 3:
Rims

1 Scope

This document sets out the designation, contours and dimensions for rims for narrow- and wide-base off-road tyres primarily intended for earth-moving machinery.

All dimensions in this document are given in millimetres and are applicable to the side of the rim which is in contact with the tyre.

Tyre designations and dimensions, tyre classifications and nomenclature are given in ISO 4250-1, ISO 10571 and ISO 13442.

Annex A gives details on sealing ring grooves and O-rings for earth-mover rims.

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 3911, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3911 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Rim identification

4.1 Codes shall be used to identify:

a) specified rim diameter, *D* (see Table 8);

b) nominal width between flanges;

c) nominal flange height or rim profile designations.

4.2 The rim marking shall consist of codes for:

a) specified rim diameter, *D*;

b) nominal width between flanges.

The markings shall be on the weather side of the rim and visible when the tyre is mounted on the rim.

Where a disk is fitted by the rim/wheel manufacturer, the marking shall appear on either the disc or the rim base.

Loose flanges shall be marked on an externally visible surface. The marking shall indicate nominal height and nominal diameter.

5 Rim contours

Rim contours are given in Figures 1 to 6 and Tables 1 to 6.

6 Rim knurling

If rim knurling is required, details can be found in Figure 7 and Table 7.

7 Rim loads and inflation pressures

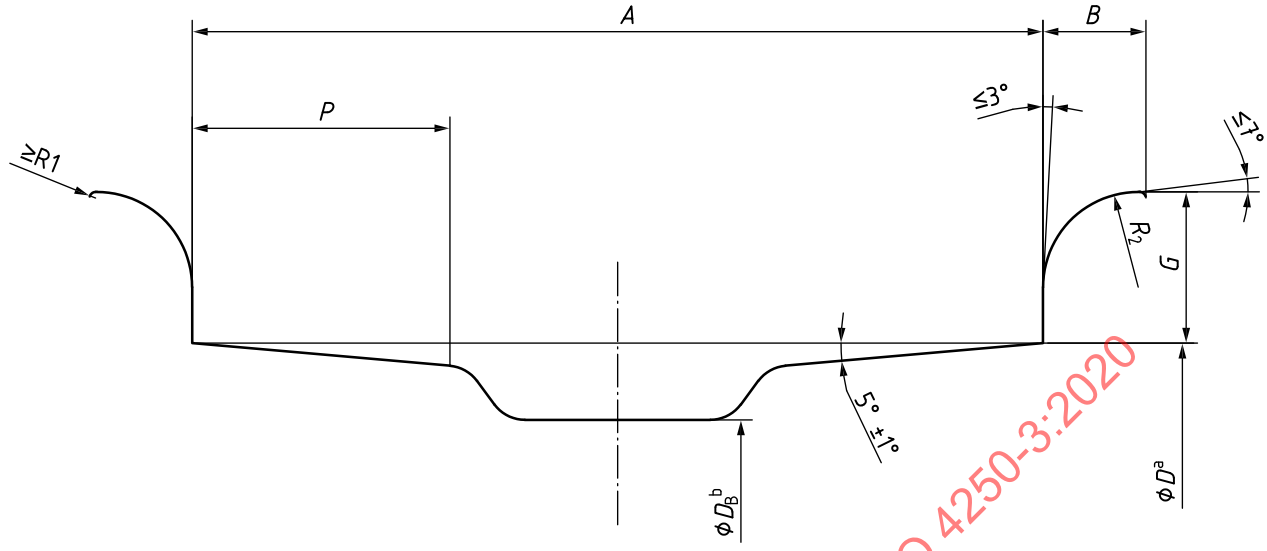
The load and inflation pressure imposed on the rim and wheel shall not exceed the rim and wheel manufacturer's recommendations, even though the tyre may be approved for a higher load or inflation pressure. Consult the rim and wheel manufacturer to determine if rim and wheel capacities are adequate for the intended service.

8 Rim dimensions

Rim dimensions are standardized for size and contour, and for particular tyre and rim combinations designed to ensure proper mounting and fit of the tyre to the rim.

Where rim dimensions are not available, consult the rim, wheel or tyre manufacturer.

Dimensions in millimetres



Flange and bead seat shall be removable on one side.

Flange width B includes edge radius.

All flange and bead seat dimensions apply to both sides of the rim contour.

NOTE This figure applies to rim diameter codes 25, 29, 33, 35, 39, 45, 49, 51, 57 and 63 (see Table 8 for specified rim diameters).

a For rim diameter codes <49, D tolerance is +0,4 −0,8.

For rim diameter codes ≥49, D tolerance is ±0,8.

The tolerance given for the specified rim diameter, D, is for tyre design purposes only. The actual rim measurement by circumference is established by using a mandrel and a tape.

b For rim diameter codes ≤49, $D_B = (D - 25{,}5)$ +0,5 −13,0.

For rim diameter codes 51 and 57, $D_B = (D - 51{,}0)$ +0,5 −13,0.

For rim diameter code 63, $D_B = (D - 63{,}5)$ ± 13,0.

Figure 1 — Contours of 5° full tapered bead seat rims with two removable flanges

Table 1 — Contours of 5° full tapered bead seat rims with two removable flanges

Dimensions in millimetres

Rim width code/ flange height code[a]	A	G	B	P	R_2	
	±13,0	±2,0	min.	min.		tol.
11.25/2.0	286,0	51,0	32,5	101,0	32,0	±1,5
13.00/2.0	330,0	51,0	32,5	101,0	32,0	±1,5
13.00/2.5	330,0	63,5	45,5	101,0	38,0	±1,5
13.00/2.75	330,0	70,0	48,0	101,0	47,5	±1,5
15.00/2.5	381,0	63,5	45,5	101,0	38,0	±1,5

a The rim width code and flange height code are applicable to specific tyre sizes. See ISO 4250-1 for approved rim/tyre combinations.

b For rim diameter code 49.

c For tyres less than 32 ply rating.

d For rim diameter code 51.

e For rim diameter code 57.

f For rim diameter code 63.

Table 1 *(continued)*

Rim width code/ flange height code[a]	*A*	*G*	*B*	*P*	R_2	
	±13,0	±2,0	min.	min.		tol.
15.00/3.0	381,0	76,0	55,0	117,5	44,5	±1,5
15.00/3.0[b]	381,0	76,0	55,0	117,5	51,0	±2,0
15.00/3.0[c]	381,0	76,0	55,0	101,0	44,5	±1,5
15.00/3.0[c,b]	381,0	76,0	55,0	101,0	51,0	±2,0
17.00/2.0	432,0	51,0	32,5	101,0	32,0	±1,5
17.00/3.5	432,0	89,0	58,0	139,0	51,0	±2,0
19.50/2.0	495,5	51,0	32,5	101,0	32,0	±1,5
19.50/2.5	495,5	63,5	45,5	101,0	38,0	±1,5
19.50/4.0	495,5	101,5	66,0	139,0	57,0	±2,0
20.00/2.0	508,0	51,0	32,5	101,0	32,0	±1,5
22.00/3.0	559,0	76,0	55,0	139,0	44,5	±1,5
22.00/4.0	559,0	101,5	66,0	139,0	57,0	±2,0
22.00/4.5	559,0	114,5	74,0	190,5	63,5	±2,0
24.00/3.0	609,5	76,0	55,0	139,0	44,5	±1,5
24.00/3.5	609,5	89,0	58,0	139,0	51,0	±2,0
24.00/5.0	609,5	127,0	86,5	190,5	70,0	±2,0
25.00/3.0	635,0	76,0	55,0	139,0	44,5	±1,5
25.00/3.5	635,0	89,0	58,0	139,0	51,0	±2,0
26.00/3.5	660,5	89,0	58,0	139,0	51,0	±2,0
26.00/5.0	660,5	127,0	86,5	190,5	70,0	±2,0
27.00/3.0	686,0	76,0	55,0	139,0	44,5	±1,5
27.00/3.5	686,0	89,0	58,0	139,0	51,0	±2,0
27.00/6.0	686,0	152,5	122,0	190,5	84,0	±2,5
28.00/3.5	711,0	89,0	58,0	139,0	51,0	±2,0
28.00/4.0	711,0	101,5	66,0	139,0	57,0	±2,0
29.00/3.5	736,5	89,0	58,0	139,0	51,0	±2,0
29.00/6.0	736,5	152,5	122,0	190,5	84,0	±2,5
31.00/4.0	787,5	101,5	66,0	139,0	57,0	±2,0
32.00/4.0	813,0	101,5	66,0	139,0	57,0	±2,0
32.00/4.5	813,0	114,5	74,0	139,0	63,5	±2,0
32.00/6.0	813,0	152,5	122,0	190,5	84,0	±2,5
32.00/6.5	813,0	165,0	122.0	190,5	70,0	±2,0
34.00/5.0	863,5	127,0	86,5	190,5	70,0	±2,0
34.00/6.0	863,5	152,5	86,5	190,5	84,0	±2,5
36.00/4.5	914,5	114,5	74,0	139,0	63,5	±2,0
36.00/5.0	914,5	127,0	139,5	190,5	70,0	±2,0

[a] The rim width code and flange height code are applicable to specific tyre sizes. See ISO 4250-1 for approved rim/tyre combinations.

[b] For rim diameter code 49.

[c] For tyres less than 32 ply rating.

[d] For rim diameter code 51.

[e] For rim diameter code 57.

[f] For rim diameter code 63.

Table 1 *(continued)*

Rim width code/ flange height code[a]	*A*	*G*	*B*	*P*	R_2	
	±13,0	±2,0	min.	min.		tol.
36.00/6.0	914,5	152,5	122,0	190,5	84,0	±2,5
38.00/5.0	965,0	127,0	139,5	190,5	70,0	±2,0
40.00/4.5	1 016,0	114,5	74,0	190,5	63,5	±2,0
41.00/5.0	1 041,5	127,0	139,5	190,5	70,0	±2,0
44.00/5.0[d]	1 117,5	127,0	86,5	190,5	70,0	±2,0
44.00/5.0[e]	1 117,5	127,0	127,0	190,5	76,0	±2,5
44.00/5.0[f]	1 117,5	127,0	139,5	190,5	70,0	±2,0
44.00/6.0	1 117,5	152,5	122,0	190,5	84,0	±2,5
47.00/6.0	1 194,0	152,5	122,0	190,5	84,0	±2,5
52.00/5.5	1 321,0	139,5	90,0	190,5	76,0	±2,0
52.00/6.0	1 321,0	152,5	127,0	254,0	84,0	±2,5
60.00/6.0	1 524,0	152,5	122,0	254,0	84,0	±2,5

[a] The rim width code and flange height code are applicable to specific tyre sizes. See ISO 4250-1 for approved rim/tyre combinations.

[b] For rim diameter code 49.

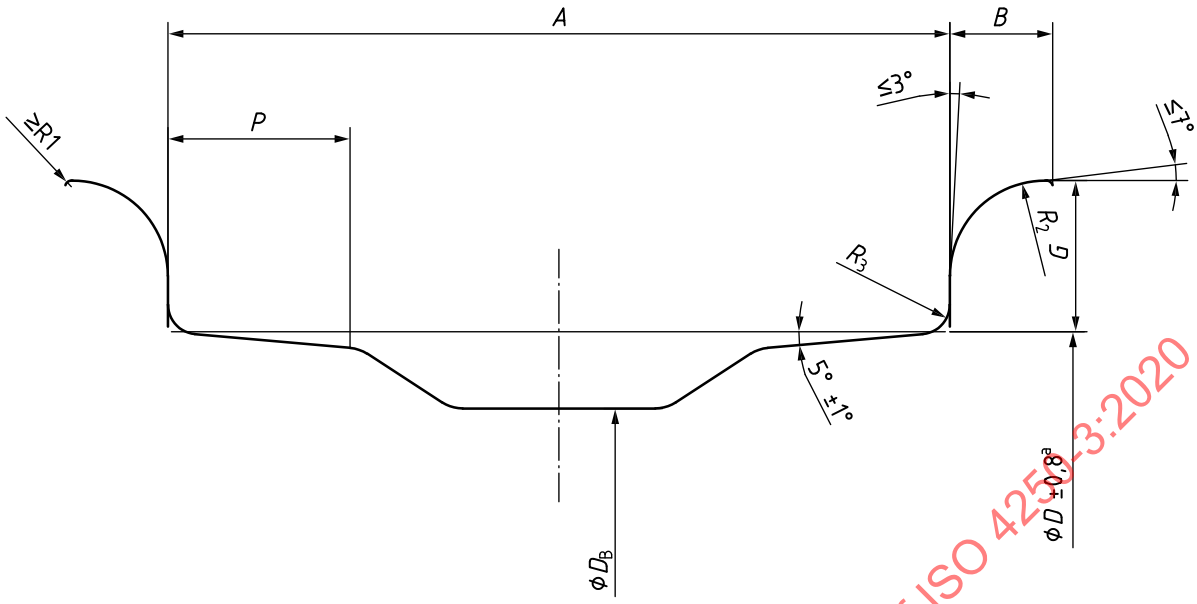
[c] For tyres less than 32 ply rating.

[d] For rim diameter code 51.

[e] For rim diameter code 57.

[f] For rim diameter code 63.

Dimensions in millimetres



Flange and bead seat shall be removable on one side.

Flange width B includes edge radius.

All flange and bead seat dimensions apply to both sides of the rim contour.

NOTE This figure applies to rim diameter code 25 (see Table 8 for specified rim diameters).

[a] The tolerance given for the specified rim diameter, *D*, is for tyre design purposes only. The actual measurement by circumference is established by using a mandrel and a tape.

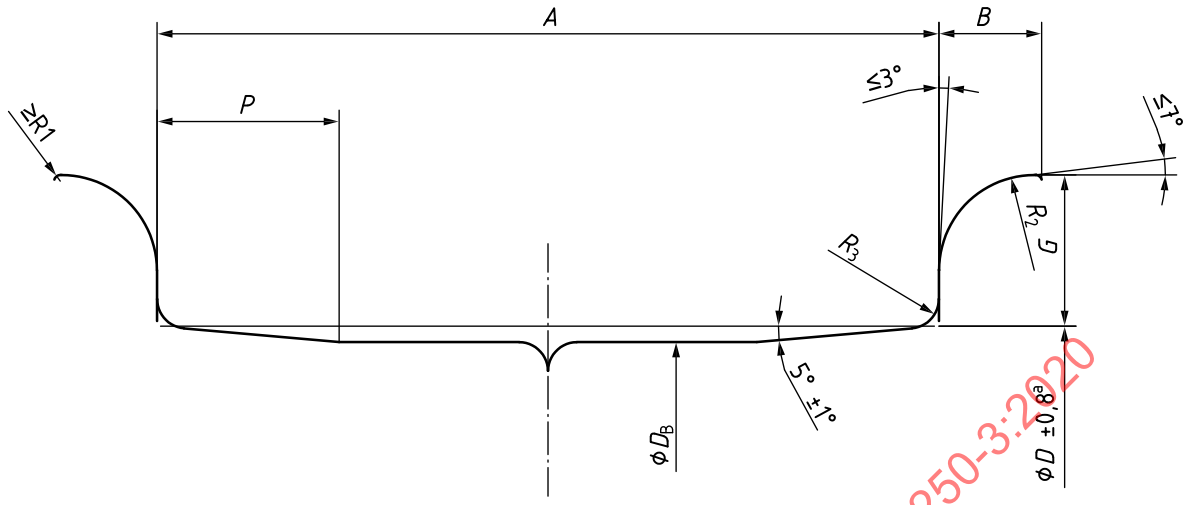
Figure 2 — Contours of 5° full tapered bead seat rims with one removable flange

Table 2 — Contours of 5° full tapered bead seat rims with one removable flange

Dimensions in millimetres

Rim width code/ flange height code	*A*		*G*		D_B			*B*	*P*	R_2		R_3
		tol.		tol.		tol.		min.	Min.		tol.	maxi-mum
8.50/1.3	216,0	±5,0	33,0	±1,5	609,5	+0,5	−13.0	25,5	50,0	23,0	±1,5	8,0
9.50/1.7 CR	241,5	±5,0	43,0	±2,0	609,5	+0,5	−13.0	37,0	60,0	23,0	±1,5	10,0
10.00/1.5	254,0	±5,0	38,0	±1,5	609,5	+0,5	−13.0	28,0	59,0	25,5	±1,5	8,0
11.00/1.7 CR	279,5	±6,5	43,0	±2,0	609,5	+0,5	−13.0	37,0	60,0	23,0	±1,5	10,0
11.25/1.3	286,0	±6,5	33,0	±1,5	609,5	+0,5	−13.0	25,5	50,0	23,0	±1,5	8,0
12.00/1.3	305,0	±6,5	33,0	±1,5	609,5	+0,5	−13.0	25,5	47,0	23,0	±1,5	10,0
14.00/1.5	355,5	±6,5	38,0	±1,5	609,5	+0,5	−13.0	28,0	59,0	25,5	±1,5	10,0
14.00/1.7 CR	355,5	±6,5	43,0	±2,0	609,5	+0,5	−13.0	37,0	60,0	23,0	±1,5	10,0
17.00 AL	432,0	±6,50	43,0	±1,5	609,5	+0,5	−13.0	25,5	63,5	23,0	±1,5	8,0
17.00/1.7	432,0	±13,0	43,0	±2,0	609,5	+0,5	−13.0	25,5	60,0	23,0	±1,5	8,0
17.00/1.7 CR	432,0	±6,5	43,0	±2,0	609,5	+0,5	−13.0	37,0	60,0	23,0	±1,5	10,0
19.50/2.5	495,5	±13,0	63,5	±2,0	609,5	+0,5	−13.0	45,5	101,0	38,0	±2,0	10,0
22.00/3.0	559,0	±13,0	76,0	±2,0	609,5	+0,5	−13.0	55,0	139,0	44,5	±2,0	10,0
25.00/3.5	635,0	±13,0	89,0	±2,0	609,5	+0,5	−13.0	58,0	139,0	51,0	±2,0	10,0

Dimensions in millimetres



Flange width B includes edge radius.

All flange and bead seat dimensions apply to both sides of the rim contour.

NOTE This figure applies to rim diameter code 25 (see Table 8 for specified rim diameters).

[a] The tolerance given for the specified rim diameter, *D*, is for tyre design purposes only. The actual measurement by circumference is established by using a mandrel and a tape.

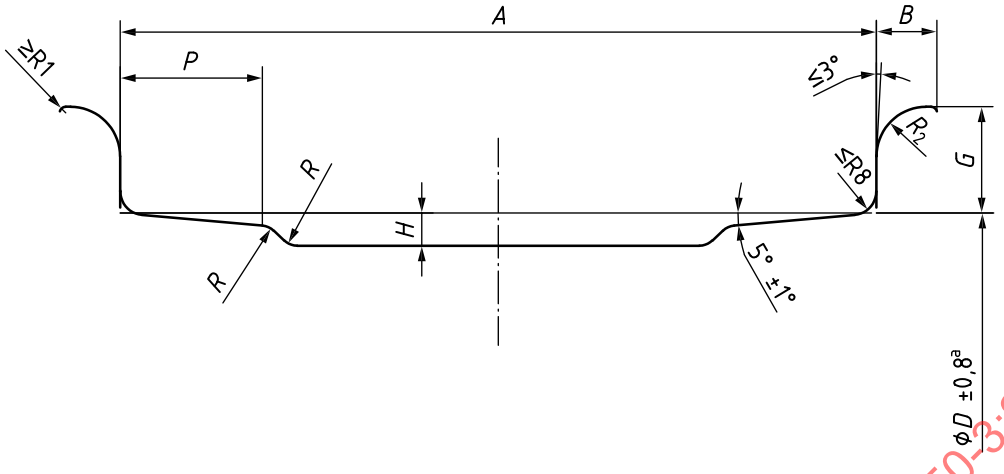
Figure 3 — Contours of 5° tapered divided rims

Table 3 — Contours of 5° tapered divided rims

Dimensions in millimetres

Rim width code/ flange height code	*A*		*G*		D_B			*B*	*P*	R_2		R_3
		tol.		tol.		tol.		min.	min.		tol.	maxi-mum
9.50/1.7 CRL	241,5	±5,0	43,0	±2,0	609,5	+8,9	−13,0	37,0	60,0	23,0	±1,5	10,0
11.00/1.7 CRL	279,5	±6,5	43,0	±2,0	609,5	+8,9	−13,0	37,0	60,0	23,0	±1,5	10,0
14.00/1.7 CRL	355,5	±6,5	43,0	±2,0	609,5	+8,9	−13,0	37,0	60,0	23,0	±1,5	10,0
17.00/1.7 CRL	432,0	±6,5	43,0	±2,0	609,5	+8,9	−13,0	37,0	60,0	23,0	±1,5	10,0

Dimensions in millimetres



Flange and bead seat shall be removable on one side.

Flange width B includes edge radius.

All flange and bead seat dimensions apply to both sides of the rim contour.

NOTE This figure applies to rim diameter codes 24 and 25. (See Table 8 for specified rim diameters.)

[a] The tolerance given for the specified rim diameter, *D*, is for tyre design purposes only. The actual rim measurement by circumference is established using a mandrel and a tape.

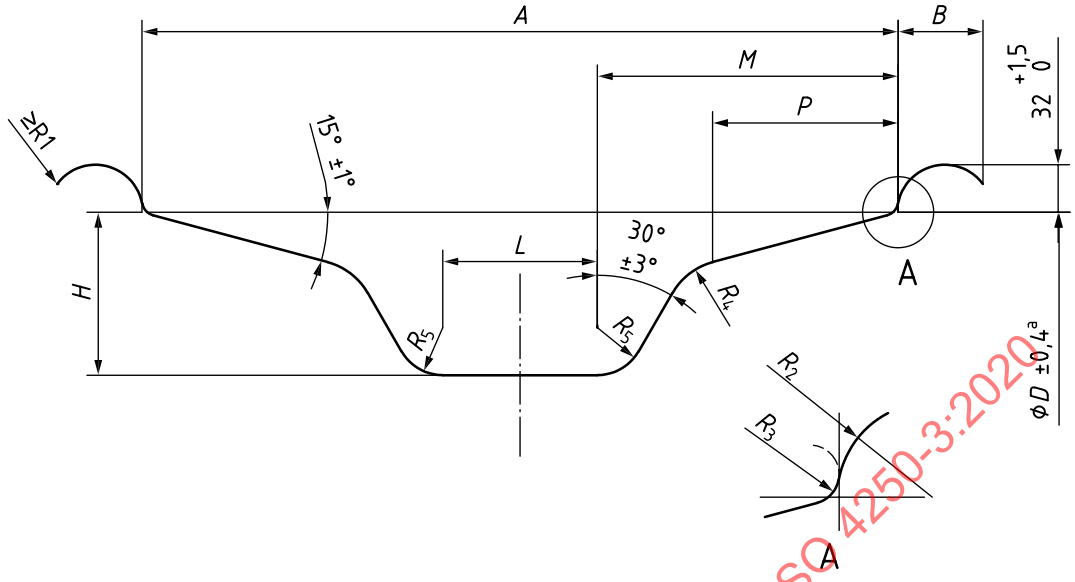
Figure 4 — Contours of semi-drop-centre rims

Table 4 — Contours of semi-drop-centre rims

Dimensions in millimetres

Rim width code/ flange height code	*A*		*G*	*B*	*P*	*H*	R_2	Rim diameter code
		tol.	±1,5	min.	min.	min.	±1,5	
8.00 TG	203,0	±3,5	35,5	17,5	47,0	6,5	16,5	24
10.00 VA	254,0	±5,0	43,0	25,5	59,0	11,0	23,0	24
12.00/1.3	305,0	±6,5	33,0	25,5	47,0	7,0	23,0	25
14.00/1.3	355,5	±6,5	33,0	25,5	47,0	7,0	23,0	25

Dimensions in millimetres



a The tolerance given for the specified rim diameter, *D*, is for tyre design purposes only. The actual rim measurement by circumference is established using a mandrel and a tape.

b The tyre-mounting side is that side of the rim to which dimension *M* applies.

NOTE This figure applies to rim diameter codes 56.5 and 59.5 (see Table 8 for specified rim diameters).

Figure 5 — Contours of 15° drop-centre rims

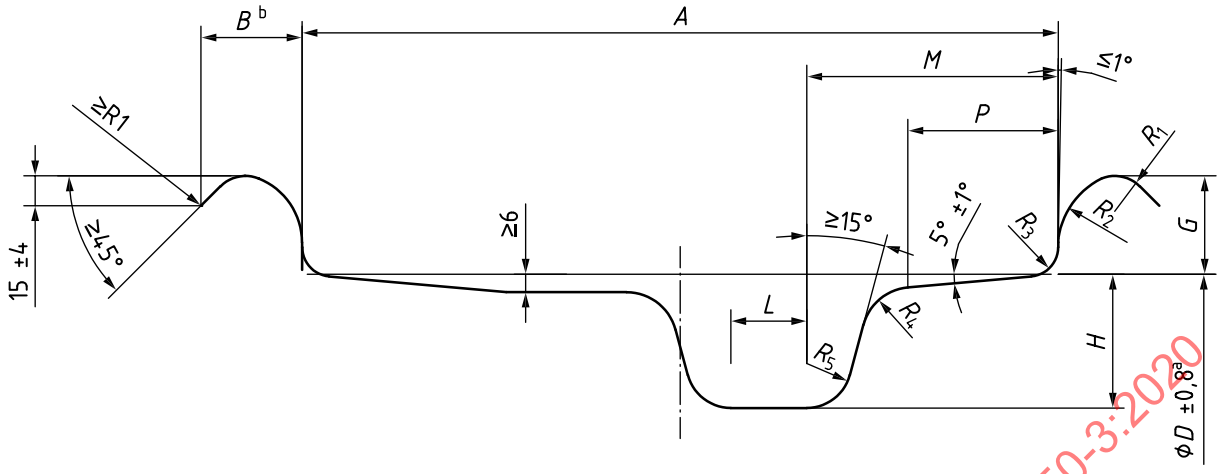
Table 5 — Contours of 15° drop-centre rims

Dimensions in millimetres

Rim width code	*A*	*B*	*H*[a]	*L*[a]	*M*[a]	*P*	R_2	R_3	R_4	R_5[a]
	±10,0	min.			maxi-mum	min.		maxi-mum	maxi-mum	
20.0	508,0	57,0	109,5	106,0	201,5	120,5	32,0	19,5	44,5	32,0
21.0	533,0	57,0	109,5	106,0	201,5	120,5	32,0	19,5	44,5	32,0
22.0	559,0	57,0	109,5	157,0	201,5	120,5	32,0	19,5	44,5	32,0
23.5	597,0	66,5	131,5	111,0	248,0	152,0	41,0	25,5	48,0	38,5
27.0	686,0	66,5	131,5	200,0	248,0	152,0	41,0	25,5	48,0	38,5

a These dimensions comprise the minimum well envelope for tyre-mounting purposes.

Dimensions in millimetres



a The tolerance given for the specified rim diameter, *D*, is for tyre design purposes only. The actual rim measurement by circumference is established by using a mandrel and a tape.

b Flange width *B* includes an edge radius.

c The tyre-mounting side is that side of the rim to which dimension *M* applies.

NOTE This figure applies to rim diameter codes 24 and 25 (see Table 8 for specified rim diameters).

Figure 6 — Contours of 5° drop-centre rims

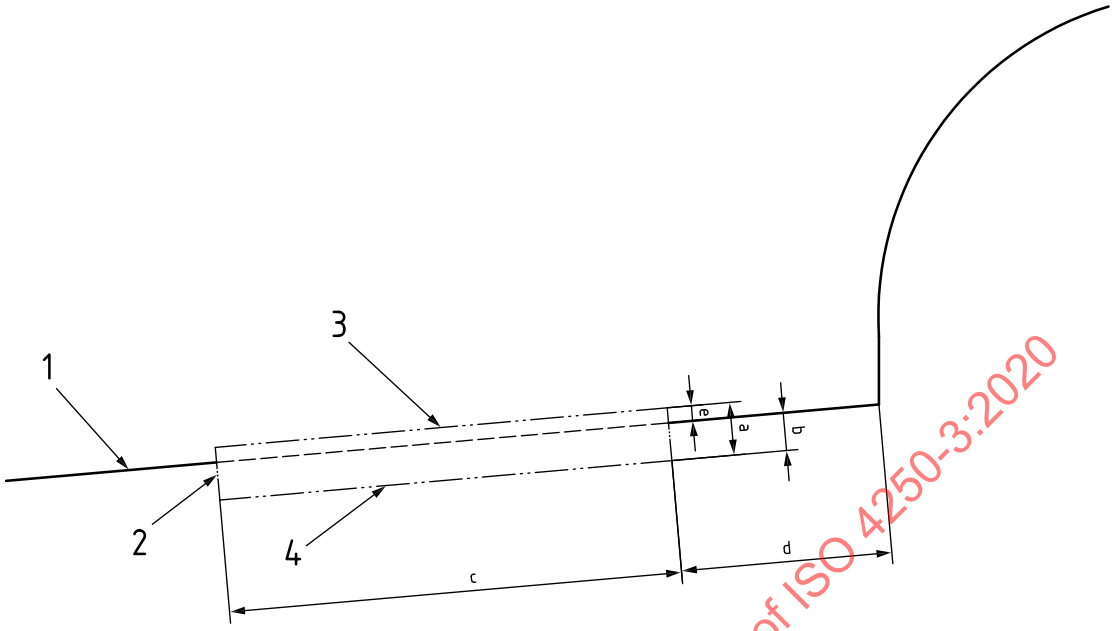
Table 6 — Contours of 5° drop-centre rims

Dimensions in millimetres

Rim width code/ flange height code	*A*		*G*	*B*		*P*	H^a	L^a	M^a	R_1	R_2	R_3	R_4	$R_5{}^a$	Rim diameter code
		tol.	±1,5	min.	maximum	min.	min.	min.	maximum	+3,0 0		maximum	min.		
9.00/1.5	228,5	±5,0	38,0	25,0	36,0	49,0	48,0	25,5	102,0	14,0	19,0	8,0	22,0	≤ 24,0	24
10.00/1.3	254,0	±6,0	33,0	25,0	40,0	49,0	45,0	25,5	102,0	12,0	23,0	10,0	17,0	≥ 15,0	24
12.00/1.3	305,0	±6,5	33,0	25,0	40,0	40,0	45,0	30,0	90,0	12,0	23,0	10,0	17,0	≥ 15,0	25
13.00/1.4	330,0	±6,5	36,0	25,0	40,0	40,0	48,0	30,0	102,0	12,0	23,0	10,0	17,0	≥ 15,0	25
14.00/1.3	355,5	±6,5	33,0	25,0	40,0	40,0	45,0	30,0	90,0	12,0	23,0	10,0	17,0	≥ 15,0	25
14.00/1.5	355,5	±6,5	38,0	27,0	43,0	40,0	52,0	30,0	90,0	12,0	25,5	10,0	17,0	≥ 15,0	25

a These dimensions comprise the minimum well envelope for tyre-mounting purposes.

Dimensions in millimetres



Key

1 base line
2 knurl envelope
3 crest
4 root

Pitch: ≥1,5 to ≤5,0

[a] Height from crest to root: ≥0,5 to ≤1,0.
[b] Depth.
[c] Width.
[d] Offset: ≥9,5 to ≤16,0.
[e] Height from crest to base line: ≥0,2.

Figure 7 — Knurling detail

Table 7 — Knurling widths

Dimensions in millimetres

Rim width codes	Fixed flange side	Removable flange side
a) Rim diameter codes 25 to 49		
11.25 to 15.00	≥25,0	≤51,0
		≥38,0
17.00 and above	≤67,0	≤67,0
	≥38,0	≥38,0
b) Rim diameter codes 51 and larger		
22.00 and above	≤67,0	≤67,0
	≥53,5	≥53,5