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International Standard



4251 / 3

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

**Tyres and rims (Existing series) for agricultural tractors and machines —
Part 3 : Rims**

Pneus et jantes (séries existantes) pour tracteurs et machines agricoles — Partie 3 : Jantes

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Descriptors : agricultural machinery, tractors, tyres, rims, dimensions.

Foreword

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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.

International Standard ISO 4251/3 was developed by Technical Committee ISO/TC 31, *Tyres, rims and valves*, and was circulated to the member bodies in January 1979.

It has been approved by the member bodies of the following countries:

Austria	Israel	Poland
Chile	Italy	Romania
China	Japan	South Africa, Rep. of
Czechoslovakia	Korea, Rep. of	Spain
Denmark	Libyan Arab Jamahiriya	Sweden
France	Mexico	United Kingdom
Germany, F.R.	Netherlands	USSR

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Canada
USA

This International Standard incorporates draft Addendum 1, which was circulated to the member bodies in September 1979 and which has been approved by the member bodies of the following countries:

Australia	Israel	Romania
Austria	Italy	South Africa, Rep. of
Belgium	Japan	Spain
Canada	Korea, Rep. of	United Kingdom
Czechoslovakia	Mexico	USA
France	Netherlands	USSR
Germany, F.R.	Poland	

No member body expressed disapproval of the document.

Tyres and rims (Existing series) for agricultural tractors and machines —

Part 3 : Rims

1 Scope and field of application

This International Standard sets out rim dimensions and rim coordinations for existing series of tyres for agricultural tractors and machines.

Tyre designation and dimensions, load ratings, and tyre classification and nomenclature are given in ISO 4251/1, ISO 4251/2 and ISO 4251/4 respectively.

2 Rim diameters

Nominal diameter size codes, specified diameters of rims and dimensions for measuring mandrels are given in table 1 and shown in figure 1.

The specified diameters, D , are derived from the nominal diameter size codes, D_R , as follows :

- a) for $D_R < 16$, $D = 25,4 (D_R - 0,031\ 25)$ mm;
- b) for $D_R = 16.1$, $D = 25,4 \times 16,043\ 75 = 407,5$ mm;
- c) for $D_R > 16.1$, $D = 25,4 (D_R + 0,187\ 5)$ mm.

For tyre design purposes only, a tolerance of $\pm 0,4$ mm on the specified diameter, D , may be applied.

Rim diameter measurements shall be performed using a ball tape checked on a mandrel of nominal circumference, U_M . The ball diameter shall be 16 mm, but other ball sizes may be used if suitable amendment of the mandrel diameter and circumference dimensions is made.

A tolerance of $\pm 1,2$ mm on rim circumference shall be permitted.

3 Rim contours and valve holes

3.1 Drop centre W and DW rims

Dimensions and tolerances of drop centre W and DW rims are given in table 2 and shown in figure 2.

The location and dimensions of valve holes are shown in figure 2.

The valve hole shall have a diameter of $15,7 \begin{smallmatrix} + 0,4 \\ 0 \end{smallmatrix}$ mm and may be on either side of the rim.

The valve seat angle shall be $30 \pm 5^\circ$ nominal. To provide for valve to vehicle clearance, optional valve seat angles of 15° minimum to 50° maximum shall be permissible. For any angle selected for a given rim, the tolerance shall be $\pm 5^\circ$.

3.2 Other drop centre rims

Dimensions and tolerances of other drop centre rims are given in table 3 and shown in figure 3.

The normal location of valve holes in C, D, E, F and LB rims is shown in figure 3. The valve hole may be on either side of the rim well.

The valve hole diameter shall be :

- a) $15,7 \begin{smallmatrix} + 0,4 \\ 0 \end{smallmatrix}$ mm for rims of nominal diameter size code 15 and above;
- b) $11,3 \begin{smallmatrix} + 0,4 \\ 0 \end{smallmatrix}$ mm for rims of nominal diameter size code 14 and below.

An optional location of valve holes in C, D, E, and F rims of diameter size code 15 and above (valve hole diameter $15,7 \begin{smallmatrix} + 0,4 \\ 0 \end{smallmatrix}$ mm) is shown in figure 4.

The location of valve holes in rims W 10 L and $16.1 \times W$ 11C and an optional location of valve holes in the corner of the well of LB rims is shown in figure 5.

To provide for valve to vehicle clearance in LB rims, optional valve seat angles of 15° minimum to 50° maximum shall be permissible. For any angle selected for a given rim, the tolerance shall be $\pm 5^\circ$.

3.3 Divided rims

Dimensions and tolerances of divided rims are given in table 4 and shown in figure 6.

The location of valve holes is shown in figure 6.

The valve hole diameter shall be :

- a) $15,7 + \begin{smallmatrix} 0,4 \\ 0 \end{smallmatrix}$ mm for rims of nominal diameter size code 15 and above;
- b) $11,3 + \begin{smallmatrix} 0,4 \\ 0 \end{smallmatrix}$ mm for rims of nominal diameter size code 14 and below.

4 Rim knurling

Transverse knurling is optional on W and DW rims as shown in figure 2 and according to table 2, with the following specifications :

- a) knurling shall start $9,5 \pm 0,8$ mm from the flange and shall be 1,6 mm minimum from the toe radius;

- b) the depth of knurling shall be 0,4 to 0,8 mm;
- c) the pitch of knurling shall be 1,6 to 3,2 mm.

5 Rim coordinations

In addition to the measurement rim width given in part 1 of this International Standard, the preferred rims and the permitted rims are specified :

- in table 5 for agricultural drive wheels, tractor tyres;
- in table 6 for agricultural steering wheels, tractor tyres;
- in table 7 for agricultural implement tyres with normal section.

NOTE — Rim coordinations for agricultural implement tyres with low section and for garden tractor tyres are under study.

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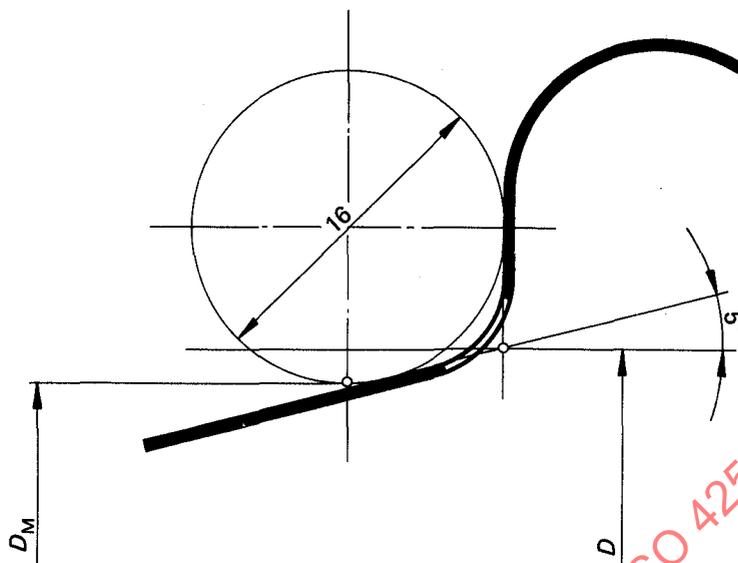


Figure 1 – Rim corner and tape ball

Table 1 – Rim diameters and mandrel dimensions
Dimensions in millimetres

Nominal diameter size code D_R	Specified diameter D	Nominal mandrel diameter D_M	Nominal mandrel circumference $U_M^{1)}$
8	202,4	201,05	631,6
9	227,8	226,45	711,4
10	253,2	251,85	791,2
12	304,0	302,65	950,8
13	329,4	328,05	1 030,6
14	354,8	353,45	1 110,4
15	380,2	378,85	1 190,2
16	405,6	404,25	1 270,0
16.1	407,5	406,15	1 276,0
18	462,0	460,65	1 447,2
20	512,8	511,45	1 606,8
24	614,4	613,05	1 926,0
26	665,2	663,85	2 085,5
28	716,0	714,65	2 245,1
30	766,8	765,45	2 404,7
32	817,6	816,25	2 564,3
34	868,4	867,05	2 723,9
36	919,2	917,85	2 883,5
38	970,0	968,65	3 043,1

1) $U_M = D_M \times 3,141 59$

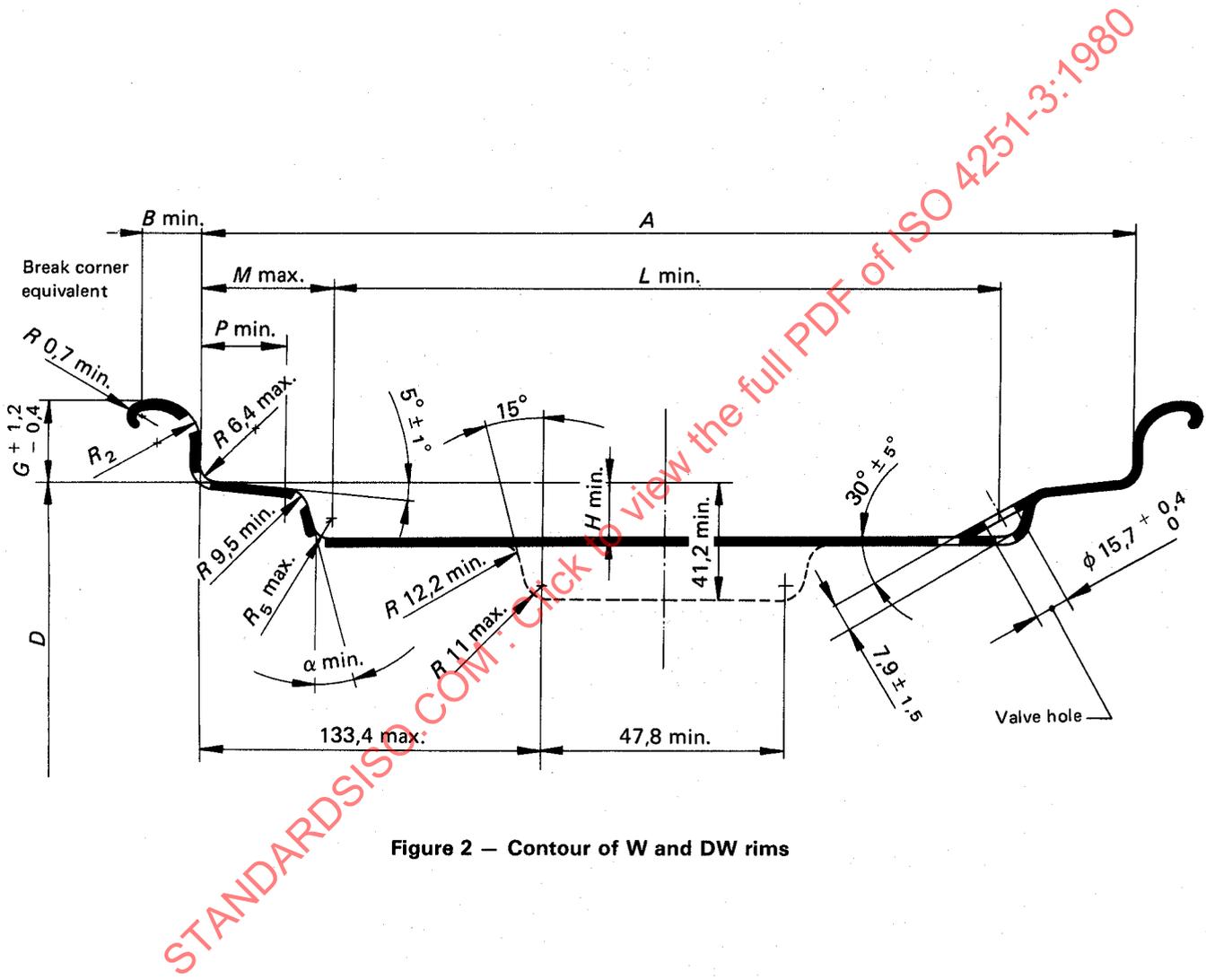


Figure 2 — Contour of W and DW rims

Table 2 — Dimensions of W and DW rims

Rim size	A		B mm min.	G mm + 1,2 - 0,4	H mm min.	M mm max.	P mm min.	L mm min.	R ₂ mm	R ₅ mm max.	α (°) min.		
	mm	Tol. mm											
W 6	152,4	± 2,4	7,9	22,2	20,6	44,5	23,8	61,0	9,5	11,0	6		
W 7	177,8							87,0					
W 8	203,2							112,0					
W 8 H			21,6	20,5	57,2	33,0	96,0						
W 8 L					51,0	99,0							
W 9	228,6		25,4	20,6	20,6	50,8	27,0	130,0			27,0	155,0	6
W 10	254,0							21,6				20,5	57,0
W 10 H			25,4	20,6	57,2	33,0	147,0						
W 10 L								54,0*			180,0		
DW 10	279,4		25,4	20,6	20,6	57,2	27,0	108,0			27,0	14,3	
W 11												54,0*	14,3
DW 11			21,6	20,5	57,0	30,0	11,0						
16,1 × W 11 C	304,8		25,4	20,6	20,6	57,2	27,0	205,0			27,0	11,0	
W 12												54,0*	14,3
DW 12												57,2	230,0
W 13	330,2	± 4,7	11,1	28,6	27,0	63,5	36,5	255,0	11,0	14,3	15		
W 14 L	355,6											11,0	
DW 14	9,5											25,4	20,6
W 15 L	381,0	± 6,4	11,1	28,6	27,0	63,5	36,5	295,0	11,0	14,3			
W 16 L	406,4										11,0		
DW 16	457,2										11,0		
DW 18	457,2	± 4,7	9,5	25,4	20,6	57,2	33,0	350,0	11,0	14,3			
W 18 L	457,2										11,0		
26 × DW 20	508,0										11,1	28,6	27,0
34, 32, 30 × DW 20		82,5											
DW 21	533,4	± 6,4	11,1	28,6	27,0	82,5	41,3	82,5	14,3				
DW 25	635,0												
DW 27	685,8												

* Optional tapered intermediate well DW 10, DW 11 and DW 12.

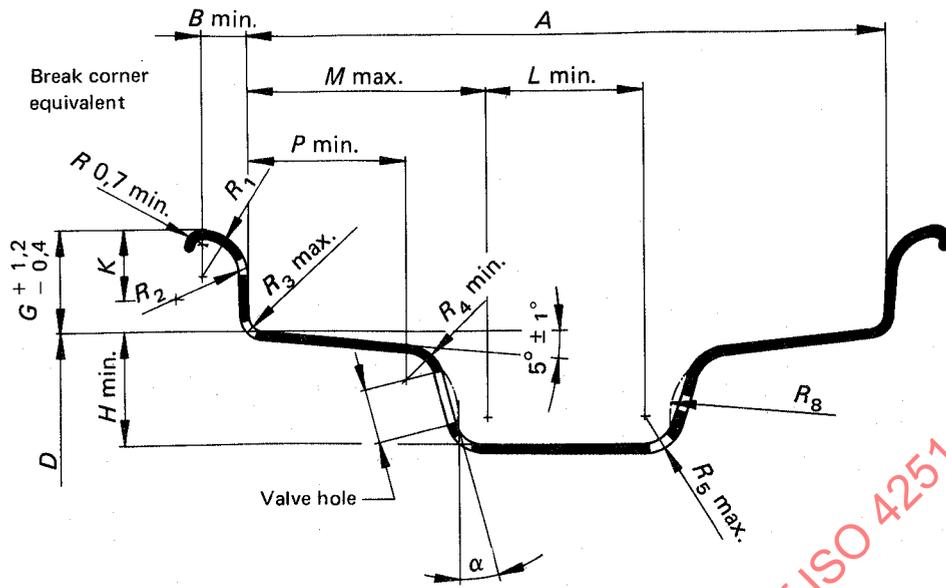


Figure 3 — Contour of other drop centre rims

Table 3 — Dimensions of other drop centre rims

Rim size	A		B mm min.	G mm + 1,2 - 0,4	H mm min.	K mm	L mm min.	M mm max.	P mm min.	R ₁ mm	R ₂ mm	R ₃ mm max.	R ₄ mm min.	R ₅ mm max.	R ₈ mm	Valve hole			
	mm	Tol. mm														see figure	α (°) min.		
2.50 C	63,5	± 1,6	10,3	15,9	14,2	11,5	13,0	25,4	12,7	7,6	11,9	3,2	6,4	6,4	28,6	3 — 4	15		
3.00 D	76,2		10,8	17,5	19,0	12,4	17,8	28,7	14,2	8,1	13,0	6,4						6,4	31,8
4.00 E	101,6		11,7	19,8	25,4	13,6	19,0	35,0	18,4	8,6	14,2								
4 J			10,3	17,3	17,8	9,7	22,0	45,0	19,8	6,4	9,7	6,4	6,4	6,4					
4.25 KA	108,0		9,1	19,6	26,2	10,4		42,0	20,8	10,7	9,5				10,0				
4.50 E	114,3		11,7	19,8	25,4	13,6	39,7	18,4	8,6	14,2		8,0							
5.00 F	127,0		12,2	22,2	26,2	14,5	25,4	54,0	23,8	9,5	15,6		6,4	9,5	8,0				
5 K			11,4	19,6	20,3	10,3	22,0	46,7	19,8	6,4	10,7	6,4						6,4	
5 KB	9,4		25,4	44,2*	3 — 5														
5.50 F	139,7		12,2	22,2		26,2	14,5	25,4	54,0	23,8	9,5	15,6	6,4	9,5	8,0				
5.50 J			10,3	17,3	17,8	9,7	22,0	45,0	19,8	6,4	9,7	6,4						6,4	
5.50 K			11,4	19,6	20,3	10,3	46,7	10,7	3 — 4										
6.00 F	152,4		12,2	22,2	26,2	14,5	25,4	54,0		23,8	9,5	15,6	9,5	8,0					
6 L			11,9	22,0					45,0						23,9			6,4	11,9
6 LB	152,4		9,5	21,6	27,0	11,0	28,5	48,3*	25,4	7,2	12,0	6,4	6,4	3 — 5	10				
7 LB	177,8																		
8 LB	203,2																		
10 LB	254,0	54,0*																	

* The rim may have offset well M max. shown on tyre mounting side, but the valve hole may be on opposite side.

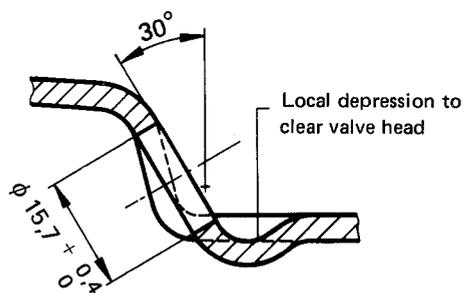


Figure 4 – Optional location of 15,7 mm valve hole

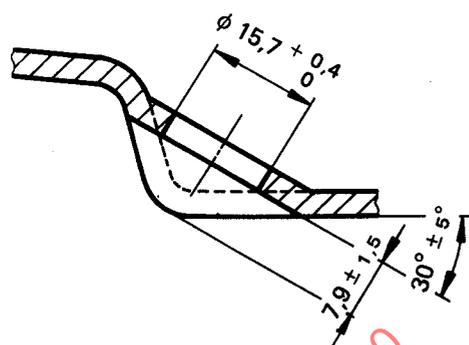


Figure 5 – Location of valve hole in corner of well

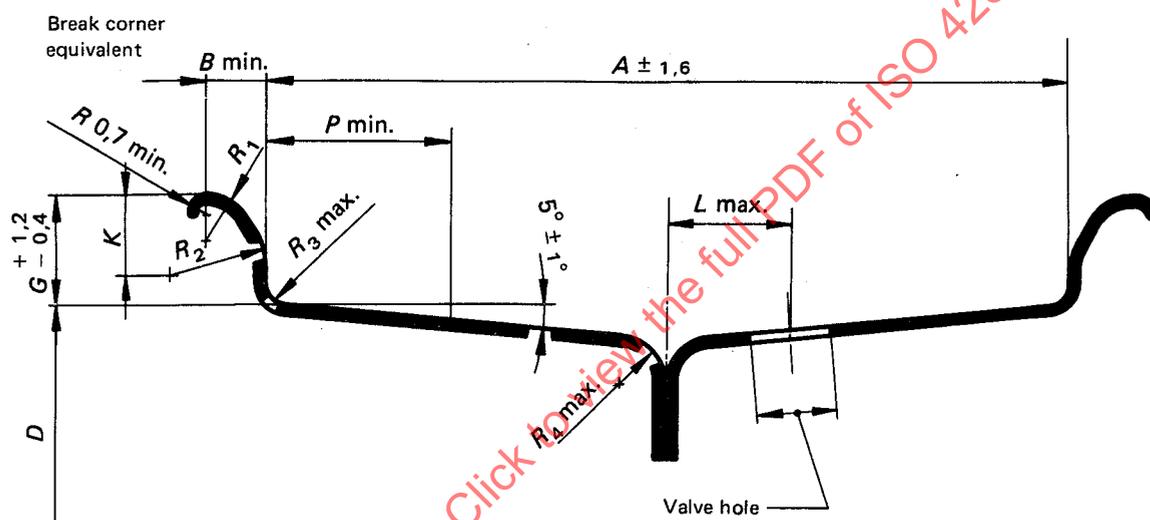


Figure 6 – Contour of divided rims

Table 4 – Dimensions of divided rims

Rim size	A ± 1,6 mm	B mm min.	G mm + 1,2 - 0,4	K mm	P mm min.	R ₁ mm	R ₂ mm	R ₃ mm max.	R ₄ mm max.	L mm max.
2.50 C	63,5	10,3	15,9	11,5	12,7	7,5	11,9	6,4	5,0	14,0
3.00 D	76,2	10,8	17,5	12,4	14,2	8,1	13,0		10,0	
4.00 E	101,6	11,7	19,8	13,6	18,4	8,6	14,2		11,0	16,0
5.00 F	127,0	12,2	22,2	14,5	23,8	9,5	15,6			21,0
5.50 F	139,7								26,0	
5.50 K		152,4	11,4	19,6	10,3	19,8	6,4		10,7	9,5
6.00 F	12,2		22,2	14,5	23,8	9,5	15,6	25,4		