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Fourth edition
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Earth-mover tyres and rims —

Part 1: Tyre designation and dimensions

Pneumatiques et jantes pour engins de terrassement —

Partie 1: Désignation et cotes des pneumatiques

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 4250-1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 6, *Off-the-road tyres and rims*.

This fourth edition cancels and replaces the third edition (ISO 4250-1:1996), which has been technically revised.

ISO 4250 consists of the following parts, under the general title *Earth-mover tyres and rims*:

— *Part 1: Tyre designation and dimensions*

— *Part 2: Loads and inflation pressures*

— *Part 3: Rims*

Earth-mover tyres and rims —

Part 1:
Tyre designation and dimensions

1 Scope

ISO 4250 consists of three parts (see the Foreword) laying down the technical elements relating to designation and dimensions of tyres and rims for earth-movers; it also gives load tables for these tyres.

This part of ISO 4250 specifies designations and dimensions for earth-mover tyres, and gives the recommended rims primarily intended for earth-moving machinery as defined in ISO 6165.

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 4223-1, *Definitions of some terms used in the tyre industry — Part 1: Pneumatic tyres*

ISO 4250-2:2006, *Earth-mover tyres and rims — Part 2: Loads and inflation pressures*

ISO 4250-3:2006, *Earth-mover tyres and rims — Part 3: Rims*

ISO 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

3 Terms and definitions

For the purposes of this document, the definitions given in ISO 4223-1 and ISO 4250-2 apply.

NOTE For a list of equivalent terms, see ISO 3877-1 [1].

4 Tyre designation

4.1 General

The designation of the tyre shall be shown on its sidewall and shall include the following details:

— size and construction characteristics (see 4.2);

— index of tyre strength (see 4.3);

and may include:

— service condition characteristics (see 4.4).

The designation may also include the various use characteristics given in 4.5 as necessary.

4.2 Tyre size and construction

4.2.1 General

The tyre size and construction shall be indicated as specified in 4.2.2 to 4.2.6.

4.2.2 Nominal section width

The nominal section width shall be expressed by a code. In the case of 65, 70, 75, 80 and 90 series tyres, this is followed, separated by a slash (/), by the nominal aspect ratio.

4.2.3 Normal aspect ratio

The nominal aspect ratio may be expressed as a percentage as a multiple of 5.

4.2.4 Tyre construction code

The type construction code shall be as follows:

- − (dash) for diagonal/bias construction

R for radial construction

In addition, the word “RADIAL” may also appear on the tyre.

4.2.5 Nominal rim diameter code

The nominal rim diameter shall be expressed by a code as given in ISO 4250-3:2006, Table 7. The suffix “TG” shall be used to identify tyres mounted on rims with a rim diameter code of 24 but having a specified diameter (D) of 614,4 mm. The suffix “K” shall be used to identify tyres mounted on rims with a rim diameter code of 15 but having a specified diameter (D) of 380,2 mm.

4.2.6 Tubeless tyres

Tubeless tyres shall be marked “TUBELESS”.

4.3 Index of tyre strength

4.3.1 General

The index of tyre strength is used to identify a given tyre with its maximum recommended load when used in a specific type of service. It shall be as specified in 4.3.2 or 4.3.3.

4.3.2 Diagonal tyres

The index of tyre strength of diagonal/bias tyres shall be expressed by a numerical code in conjunction with the letter “PR” (ply rating), e.g. “16 PR” or by service condition characteristics as given in 4.4 or by both the numerical code and service condition characteristics.

4.3.3 Radial tyres

The index of tyre strength of radial tyres shall be expressed by a symbol in the form of 1, 2 or 3 stars (symbol marking), e.g. “★” or by service condition characteristics as given in 4.4 or by the symbol and service condition characteristics.

4.4 Service condition characteristics

4.4.1 General

The service condition characteristics shall be indicated as follows:

Load index Speed symbol Service description

For the specific types of service, earth-mover tyres may be marked with several service condition characteristics, for example, those for earth-moving haulage service at 50 km/h, for low speed service at 10 km/h (loading cycle), or for grader service at 40 km/h.

NOTE Definitions of operating conditions are given in ISO 4250-2:2006, 3.2.

4.4.2 Load index

The load index is a numerical code associated with a maximum load a tyre can carry at the speed indicated by its speed symbol under service conditions specified by the tyre manufacturer.

The correlation between load indices and tyre load-carrying capacities shall be as given in Table 1.

Table 1 — Correlation between load index (LI) and tyre load-carrying capacity (TLCC)

LI	TLCC kg	LI	TLCC kg	LI	TLCC kg	LI	TLCC kg	LI	TLCC kg
120	1 400	160	4 500	200	14 000	240	45 000	280	140 000
121	1 450	161	4 625	201	14 500	241	46 250	281	145 000
122	1 500	162	4 750	202	15 000	242	47 500	282	150 000
123	1 550	163	4 875	203	15 500	243	48 750	283	155 000
124	1 600	164	5 000	204	16 000	244	50 000	284	160 000
125	1 650	165	5 150	205	16 500	245	51 500	285	165 000
126	1 700	166	5 300	206	17 000	246	53 000	286	170 000
127	1 750	167	5 450	207	17 500	247	54 500	287	175 000
128	1 800	168	5 600	208	18 000	248	56 000	288	180 000
129	1 850	169	5 800	209	18 500	249	58 000	289	185 000
130	1 900	170	6 000	210	19 000	250	60 000	290	190 000
131	1 950	171	6 150	211	19 500	251	61 500	291	195 000
132	2 000	172	6 300	212	20 000	252	63 000	292	200 000
133	2 060	173	6 500	213	20 600	253	65 000	293	206 000
134	2 120	174	6 700	214	21 200	254	67 000	294	212 000
135	2 180	175	6 900	215	21 800	255	69 000	295	218 000
136	2 240	176	7 100	216	22 400	256	71 000	296	224 000
137	2 300	177	7 300	217	23 000	257	73 000	297	230 000
138	2 360	178	7 500	218	23 600	258	75 000	298	236 000
139	2 430	179	7 750	219	24 300	259	77 500	299	243 000
140	2 500	180	8 000	220	25 000	260	80 000	300	250 000
141	2 575	181	8 250	221	25 750	261	82 500	301	257 500
142	2 650	182	8 500	222	26 500	262	85 000	302	265 000
143	2 725	183	8 750	223	27 250	263	87 500	303	272 500
144	2 800	184	9 000	224	28 000	264	90 000		
145	2 900	185	9 250	225	29 000	265	92 500		
146	3 000	186	9 500	226	30 000	266	95 000		
147	3 075	187	9 750	227	30 750	267	97 500		
148	3 150	188	10 000	228	31 500	268	100 000		
149	3 250	189	10 300	229	32 500	269	103 000		
150	3 350	190	10 600	230	33 500	270	106 000		
151	3 450	191	10 900	231	34 500	271	109 000		
152	3 550	192	11 200	232	35 500	272	112 000		
153	3 650	193	11 500	233	36 500	273	115 000		
154	3 750	194	11 800	234	37 500	274	118 000		
155	3 875	195	12 150	235	38 750	275	121 000		
156	4 000	196	12 500	236	40 000	276	125 000		
157	4 125	197	12 850	237	41 250	277	128 500		
158	4 250	198	13 200	238	42 500	278	132 000		
159	4 375	199	13 600	239	43 750	279	136 000		

4.4.3 Speed symbol

The speed symbol is a symbol indicating the speed at which the tyre can carry a load corresponding to its load index under service conditions specified by the tyre manufacturer.

The correlation between speed symbols and reference speeds shall be as given in Table 2.

The speed symbol(s) marked on earth-mover tyres also indicate(s) the type of operating condition(s) for which the tyre is designed.

Table 2 — Correlation between speed symbol, operating condition and reference speed

Speed symbol	Reference speed km/h	Operating condition
A2	10	Slow speed service (loading), loader, dozer, industrial application, etc.
A8	40	Grader service
B	50	Earth-mover service (transport), haulage truck, dumper, scraper, etc.

4.4.4 Service description

The word “CYCLIC” shall be used to indicate that a tyre cannot be used continuously at the load indicated by its load index and at the speed indicated by its speed symbol. It indicates that the tyre is designed for operations in a work cycle.

Examples of tyre designation/markings are given in Table 3.

Table 3 — Examples of tyre designation/marking

Nominal section width code[a]	Construction code	Nominal rim diameter code[b]	Index of tyre strength	Load index	Speed symbol	Service description
a) Symbol-marked radial tyres						
30.00	R	51	★★	230	B	CYCLIC
				248	A2	CYCLIC
17.5	R	25	★	176	A2	CYCLIC
17.5	R	25	★★	167	B	CYCLIC
40/65	R	39	★	228	A2	CYCLIC
b) Ply-rating-marked diagonal tyres						
20.5	—	25	20 PR	160	A8	
				170	B	CYCLIC
37.5	—	51	44 PR	238	A2	CYCLIC
				223	B	CYCLIC
16.00	—	24 TG	16 PR	160	A8	
21.00	—	49	40 PR	206	B	CYCLIC

[a] Includes, as necessary, the nominal aspect ratio (see 4.2.2 and 4.2.3).

[b] Includes, as necessary, the suffix code (see 4.2.5).

4.5 Other service characteristics

4.5.1 Preferred direction of rotation

In the case of a preferred direction of rotation, this direction shall be indicated by an arrow.

4.5.2 Code for usage

Tyres may be identified by a code for usage indicating their type of service and tread design as shown in Tables 4 and 5 respectively.

The use of these identification codes is at the discretion of the individual tyre manufacturer.

Table 4 — Type of service

Code	Type of service
C	Compactor
E	Earth-mover (dumper and tractor-scraper)
G	Grader
L	Loader

Table 5 — Tread design

Code [a, b]	Tread type
C-1	Smooth
C-2	Grooved
E-1	Rib
E-2	Traction
E-3	Rock
E-4	Rock (deep tread)
E-7	Flotation
G-1	Rib
G-2	Traction
G-3	Rock
L-2	Traction
L-3	Rock
L-4	Rock (deep tread)
L-5	Rock (extra-deep tread)

[a] Where smooth treads are used in the “L” series, this should be denoted by the suffix “S” (for example, L-5S).

[b] Code types 1, 2 and 3 are designated as normal tread depth.

5 Tyre dimensions

The designation of dimension, measuring rim, design tyre dimension and maximum overall dimensions in-service are given in

a) Table 6 for narrow-base tyres;

b) Table 7 for narrow-base tyres on SDC rims;

c) Table 8 for narrow-base tyres on 15° rim contours;

d) Table 9 for wide-base and 75 series tyres;

e) Table 10 for 65 and 70 series tyres;

f) Table 11 for 80 and 90 series tyres;

g) Table 12 for compactor tyres.

6 Dual spacing

Recommended minimum dual spacing should be section width $\times$ 1,2.

7 Approved rims

Approved rims are given in

a) Table 13 for narrow-base tyres;

b) Table 14 for 80 and 90 series tyres;

c) Table 15 for narrow-base tyres on SDC rims;

d) Table 16 for narrow-base tyres on 15° rim contours;

e) Table 17 for wide-base and 75 series tyres for earth-movers, mining and logging service, mobile cranes, shovels, mining cars, loaders and dozers;

f) Table 18 for 65 and 70 series tyres;

g) Table 19 for compactor tyres;

h) Table 20 for tyres on 5° DC rims for graders.

8 Method of measurement of tyre dimensions

Before measuring, the tyre shall be mounted on a measuring rim, inflated to the recommended pressure, and allowed to stand for a minimum of 24 h at normal room temperature, after which the inflation pressure shall be readjusted to the original value.

Table 6 — Tyre dimensions for narrow-base tyres

Dimensions in millimetres

Tyre size designations [a]	Measuring rim width code	Design new tyre [b]		In-service [c]	
		Section width S	Overall diameter [d] D_o	Maximum overall width W_{max}	Maximum overall diameter [d] $D_{o,max}$
12.00 — 20	8.50	315	1 146	340	1 184
12.00 — 21			1 146		1 184
12.00 — 24			1 247		1 285
12.00 — 25			1 247		1 285
13.00 — 24	10.00	351	1 301	379	1 342
13.00 — 25			1 301		1 342
14.00 — 20	10.00	375	1 266	405	1 311
14.00 — 21			1 266		1 311
14.00 — 24			1 368		1 414
14.00 — 25			1 368		1 414
16.00 — 20	11.25	432	1 391	480	1 460
16.00 — 21			1 391		1 460
16.00 — 24			1 493		1 561
16.00 — 25			1 493		1 561
18.00 — 24	13.00	498	1 615	553	1 693
18.00 — 25			1 615		1 693
18.00 — 33			1 818		1 896
18.00 — 49			2 227		2 306
21.00 — 24	15.00	571	1 750	634	1 839
21.00 — 25			1 750		1 839
21.00 — 35			2 004		2 093
21.00 — 49			2 360		2 449
24.00 — 25	17.00	653	1 875	725	1 974
24.00 — 29			1 975		2 074
24.00 — 35			2 127		2 226
24.00 — 43			2 331		2 430
24.00 — 49			2 483		2 582
27.00 — 33	22.00	762	2 242	846	2 354
27.00 — 49	19.50	737	2 649	818	2 761
30.00 — 33	22.00	823	2 389	914	2 513
30.00 — 51			2 846		2 970
33.00 — 51	24.00	894	2 997	992	3 133
36.00 — 51	26.00	988	3 165	1 097	3 315
37.00 — 57	27.00	1 016	3 370	1 118	3 524
40.00 — 57	29.00	1 097	3 526	1 218	3 692

[a] For radial tyres, replace the dash (—) in the size designation with "R".

[b] Design new tyre dimensions quoted are used for tyre design purposes only.

[c] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,08 for $S < 380$ mm;

a = 0,11 for $S \geqslant 380$ mm.

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,06 for $S < 380$ mm

b = 0,08 for $S \geqslant 380$ mm

[d] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

Table 7 — Tyre dimensions for narrow-base tyres on SDC rims

Dimensions in millimetres

Tyre size designation[a, b]	Measuring rim width code	Design new tyre[c]		In-service[d]	
		Section width	Overall diameter [e]	Maximum overall width	Maximum overall Diameter[e]
		S	D_o	W_{max}	$D_{o,max}$
10.00 — 24 TG	8.00	283	1 151	306	1 184
12.00 — 24 TG	8.00	312	1 226	337	1 263
13.00 — 24 TG	8.00	333	1 278	360	1 318
14.00 — 24 TG	8.00	362	1 348	391	1 392
16.00 — 24 TG	10.00	427	1 459	474	1 527

[a] For radial tyres, replace the dash (—) in the size designation with "R".

[b] "TG" is a designation to be used to identify tyres mounted on rims with a specified diameter D of 614,4 mm.

[c] Design new tyre dimensions quoted are used for tyre design purposes only.

[d] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,08 for $S < 380$ mm;

a = 0,11 for $S \geqslant 380$ mm.

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,06 for $S < 380$ mm;

b = 0,08 for $S \geqslant 380$ mm.

[e] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

Table 8 — Dimensions for narrow-base tyres on 15° rim contours

Dimensions in millimetres

Tyre size designation	Measuring rim width code	Design new tyre[a]		In-service[c]	
		Section width	Overall diameter[b]	Maximum overall width	Maximum overall diameter[b]
		S	D_o	W_{max}	$D_{o,max}$
27 — 56.5	20.00	653	2 483	725	2 582
30 — 56.5	22.00	737	2 649	818	2 761
33 — 59.5	23.50	808	2 846	897	2 970
36 — 59.5	27.00	899	2 997	998	3 133
39 — 59.5	27.00	973	3 165	1 080	3 315

[a] Design new tyre dimensions quoted are used for tyre design purposes only.

[b] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

[c] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

Table 9 — Tyre dimensions for wide-base and 75 series tyres

Dimensions in millimetres

Tyre size Designations[a]	Measuring rim width code	Design new tyre[b]		In-service[c]	
		Section width	Overall diameter[d]	Maximum overall width	Maximum overall diameter[d]
		S	D_o	W_{max}	$D_{o,max}$
15.5 — 25	12.00	394	1 277	437	1 328
17.5 — 25	14.00	445	1 348	494	1 405
20.5 — 25	17.00	520	1 492	577	1 561
23.5 — 25	19.50	597	1 617	663	1 696
26.5 — 25	22.00	673	1 750	747	1 839
26.5 — 29			1 851		1 940
29.5 — 25	25.00	750	1 873	833	1 972
29.5 — 29			1 975		2 074
29.5 — 35			2 127		2 226
33.25 — 29	27.00	845	2 090	938	2 198
33.25 — 35			2 242		2 350
33.5 — 33	28.00	850	2 242	944	2 354
33.5 — 39			2 395		2 507
37.25 — 35	31.00	946	2 389	1 050	2 509
37.5 — 33	32.00	952	2 389	1 057	2 513
37.5 — 39			2 541		2 665
37.5 — 51	32.00	952	2 846	1 057	2 970
40.5/75 — 39	32.00	1 029	2 581	1 142	2 708

[a] For radial tyres, replace the dash (—) in the size designation with “R”.

[b] Design new tyre dimensions quoted are used for tyre design purposes only.

[c] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,08 for $S < 380$ mm

a = 0,11 for $S \geqslant 380$ mm

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,06 for $S < 380$ mm

b = 0,08 for $S \geqslant 380$ mm

[d] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

Table 10 — Tyre dimensions for 65 and 70 series tyres

Dimensions in millimetres

Tyre size designation[a]	Measuring rim width code	Design new tyre[b]		In-service[c]	
		Section width	Overall diameter[d]	Maximum overall width	Maximum overall diameter[d]
		S	D_o	W_{max}	$D_{o,max}$
25/65 — 25	20.00	635	1 486	705	1 554
30/65 — 25	24.00	762	1 656	846	1 738
30/65 — 29			1 758		1 840
35/65 — 33	28.00	889	2 029	987	2 124
40/65 — 39	32.00	1 016	2 352	1 128	2 461
45/65 — 39	36.00	1 143	2 522	1 269	2 645
45/65 — 45			2 675		2 798
41.25/70 — 39	32.00	1 048	2 452	1 163	2 569

[a] For radial tyres, replace the dash (—) in the size designation with “R”.

[b] Design new tyre dimensions quoted are used for tyre design purposes only.

[c] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,08 for $S < 380$ mm;

a = 0,11 for $S \geqslant 380$ mm.

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,06 for $S < 380$ mm;

b = 0,08 for $S \geqslant 380$ mm.

[d] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

Table 11 — Tyre dimensions for 80 and 90 series tyres

Dimensions in millimetres

Tyre size Designation	Measuring rim width code	Design new tyre[a]		In-service[b]	
		Section width	Overall diameter[c]	Maximum overall width	Maximum overall diameter[c]
		S	D_o	W_{max}	$D_{o,max}$
21/90R33	13.00	533	1 798	587	1 826
31/80R49	22.00	790	2 750	835	2 543
31/90R49	19.50	787	2 662	866	2 705
42/90R57	27.00	1 067	3 368	1 173	3 426
46/90R57	29.00	1 168	3 526	1 285	3 588
50/80R57	34.00	1 270	3 480	1 342	3 541
50/90R57	32.00	1 270	3 761	1 397	3 831
53/80R63	36.00	1 346	3 713	1 481	3 780
55/80R63	41.00	1 397	3 835	1 537	3 904
58/80R63	44.00	1 473	3 830	1 621	3 897
59/80R63[d]	44.00	1 499	3 998	1 648	4 070[d]

[a] Design new tyre dimensions quoted are used for tyre design purposes only.

[b] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,10

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,03.

[c] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

[d] If the grown tyre exceeds 4 028 mm, the tyre may not fit existing vehicles.

Table 12 — Tyre dimensions for compactor tyres

Dimensions in millimetres

Tyre size Designations[a]	Measuring rim width code	Design new tyre[b]		In-service[c]	
		Section width	Overall diameter[d]	Maximum overall width	Maximum overall diameter[d]
		S	D_o	W_{max}	$D_{o,max}$
8.5/90 — 15K[e]	6.00	220	782	237	806
7.50 — 15	6.00	215	782	232	806
7.50 — 16			808		832
8.25 — 15	6.50	236	845	255	873
8.25 — 20			972		1 000
9.00 — 20	7.00	259	1 016	280	1 046
10.00 — 20	7.50	278	1 051	300	1 083
11.00 — 20	8.00	293	1 083	316	1 117
12.00 — 16	8.50	315	1 021	340	1 058
12.00 — 20			1 122		1 159
13.00 — 24	10.00	351	1 276	379	1 316
14.00 — 24	10.00	375	1 340	405	1 383
10.5/80 — 16	8.00	263	812	284	836
11/80 — 20	8.00	282	922	305	982
13/80 — 20	9.00	326	1 048	352	1 080
17/80 — 20	10.00	412	1 340	457	1 406

[a] For radial tyres, replace the dash (—) in the size designation with “R”.

[b] Design new tyre dimensions quoted are used for tyre design purposes only.

[c] In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

The maximum overall width in-service is given by the equation

$$W_{max} = S\,(1 + a)$$

where

S is the design new tyre section width;

a = 0,08 for $S < 380$ mm;

a = 0,11 for $S \geqslant 380$ mm.

The maximum overall diameter in-service is given by the equation

$$D_{o,\,max} = (D_o - D)\,(1 + b) + D$$

where

D is the rim diameter specified in ISO 4250-3;

b = 0,06 for $S < 380$ mm;

b = 0,08 for $S \geqslant 380$ mm.

[d] Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

[e] The suffix “K” shall be used to identify tyres mounted on rims with a rim diameter code of 15 but having special diameter (D) of 380,2 mm.

Table 13 — Approved rims for diagonal and radial narrow-base tyres for earth-movers, mobile cranes, shovels, mining cars, loaders and dozers

Tyre size designation[a, b]	Approved rims[c]
12.00 — 20	8.00V, 8.5, 8.50V, 8.5V5º, 9.00V
12.00 — 21	8.50/1.3
12.00 — 24	8.00V, 8.5, 8.50V, 8.5V5º, 9.00V
12.00 — 25	8.50/1.3
13.00 — 24	8.50V, 9.00V, 10.00W, 10.00WI
13.00 — 25	10.00/1.5
14.00 — 20	9.00V, 10.00W, 10.00WI
14.00 — 21	10.00/1.5
14.00 — 24	9.00V, 10.00W, 10.00WI
14.00 — 25	10.00/1.5
16.00 — 20	11.25/2.0
16.00 — 21	11.25/2.0
16.00 — 24	11.25/2.0
16.00 — 25	11.25/2.0
18.00 — 24	13.00/2.5
18.00 — 25	13.00/2.5
18.00 — 33	13.00/2.5
18.00 — 49	13.00/2.75
21.00 — 24	15.00/3.0
21.00 — 25	15.00/3.0
21.00 — 35	15.00/3.0
21.00 — 49	15.00/3.0
24.00 — 25	17.00/3.5
24.00 — 29	17.00/3.5
24.00 — 35	17.00/3.5
24.00 — 43	17.00/3.5
24.00 — 49	17.00/3.5
27.00 — 33	22.00/4.0
27.00 — 49	19.50/4.0
30.00 — 33	22.00/4.5
30.00 — 51	22.00/4.5
33.00 — 51	24.00/5.0
36.00 — 51	26.00/5.0
37.00 — 57	27.00/6.0
40.00 — 57	29.00/6.0

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash (—) in the size designation with “R”.

[c] See ISO 4250-3 for rim contours.

Table 14 — Approved rims for radial 80 and 90 series tyres

Tyre size designation[a]	Approved rims[b]
31/80R49	22.00/3.5
50/80R57	34.00/5.0
53/80R63	36.00/5.0
55/80R63	41.00/5.0
58/80R63	44.00/5.0
59/80R63	44.00/5.0
21/90R33	13.00/2.5
31/90R49	19.50/4.0
42/90R57	27.00/6.0
46/90R57	29.00/6.0, 32.00/6.0
50/90R57	32.00/6.5

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] See ISO 4250-3 for rim contours.

Table 15 — Approved rims for diagonal and radial narrow-base tyres on SDC rims for road graders

Tyre size designation[a, b, c]	Approved rims[d]
10.00 — 24 TG	8.00 TG
12.00 — 24 TG	8.00 TG
13.00 — 24 TG	8.00 TG 10.00 VA
14.00 — 24 TG	8.00 TG 10.00 VA
16.00 — 24 TG	10.00 VA

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash (—) in the size designation with “R”.

[c] “TG” is a designation to be used to identify tyres mounted on SDC rims.

[d] See ISO 4250-3 for rim contours.

Table 16 — Approved rims for diagonal and radial narrow-base tyres on 15° rim contours

Tyre size designation[a]	Approved rims[b]
27 — 56.5	20.0, 21.0
30 — 56.5	22.0, 21.0
33 — 59.5	23.5
36 — 59.5	27.0
39 — 59.5	27.0

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] See ISO 4250-3 for rim contours.

Table 17 — Approved rims for diagonal and radial wide-base and 75 series tyres for earth-movers, mining and logging service, mobile cranes, shovels, mining cars, loaders and dozers

Tyre size designation[a, b]	Approved rims[c]
15.5 — 25	12.00/1.3, 12.00(DC)[d] 12.00/1.3 (SDC), 13.00/1.4
17.5 — 25	13.00/1.4,13.00/1.3, 13.00(DC)[d], 14.00/1.5 14.00/1.3 (SDC)
20.5 — 25	17.00/2.0 17.00/1.7
23.5 — 25	19.50/2.5
26.5 — 25	22.00/3.0
26.5 — 29	22.00/3.0
29.5 — 25	25.00/3.5
29.5 — 29	24.00/3.5, 25.00/3.5, 26.00/3.5
29.5 — 35	25.00/3.5
33.25 — 29	26.00/3.5, 27.00/3.5
33.25 — 35	27.00/3.5, 29.00/3.5
33.5 — 33	28.00/4.0
33.5 — 39	28.00/4.0
37.25 — 35	29.00/3.5[e], 31.00/4.0
37.5 — 33	32.00/4.5
37.5 — 39	32.00/4.5
37.5 — 51	32.00/4.5
40.5/75 — 39	32.00/4.5

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash in the size designation with “R”.

[c] See ISO 4250-3 for rim contours.

[d] Maximum 16 PR or one star (★).

[e] For earth-mover service only.

Table 18 — Approved rims for diagonal and radial 65 and 70 series tyres

Tyre size designation[a, b]	Approved rims[c]
25/65 — 25	19.50/2.0 20.00/2.0
30/65 — 25	24.00/3.0
30/65 — 29	24.00/3.0
35/65 — 33	28.00/3.5
40/65 — 39	32.00/4.0
45/65 — 39	36.00/4.5
45/65 — 45	36.00/4.5
50/65 — 51	40.00/4.5
41.25/70 — 39	32.00/4.5

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash (—) in the size designation with “R”.

[c] See ISO 4250-3 for rim contours.

Table 19 — Approved rims for diagonal and radial compactor tyres

Tyre size designation[a, b]	Approved rims[c]
8.5/90 — 15K[d]	5.50F
7.50 — 15[d]	6.0, 6.00 GS, 6.5
7.50 — 16	5.50F, 6LB, 6.0, 6.00 GS
8.25 — 15	6.0, 6.5, 6.50T, 7.0
8.25 — 20	6.0, 6.00S, 6.5, 6.50T, 7.0, 7.00T
9.00 — 20	6.5, 6.50T, 7.00, 7.00T, 7.5
10.00 — 20	7.0, 7.5, 8.0
11.00 — 20	7.5, 7.50V, 8.0, 8.00V, 8.5, 8.50V, 9.0
12.00 — 16	8.50V
12.00 — 20	8.00V, 8.50V, 9.00V
13.00 — 24	8.50V, 9.0, 9.00V, 10.00W, 10.00WI
14.00 — 24	10.0, 10.00W
10.5/80 — 16	8 LB
11/80 — 20	8.00
13/80 — 20	9.0, 10.0
17/80 — 24	10.0, 10.00W

[a] The tyre and rim/wheel manufacturers shall be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash (—) in the size designation with "R".

[c] See ISO 4250-3 or ISO 4251-3 for rim contours.

[d] Tyres are designed for fitment on a specific rim only. They are not interchangeable. The tyre manufacturer shall be consulted to assure correct tyre/rim combination.

Table 20 — Approved rims for diagonal and radial tyres on 5° DC rims for graders

Tyre size designations[a, b, c]	Approved rims[d]
13.00 — 24 TG	9.00/1.5, 10.00/1.3
14.00 — 24 TG	9.00/1.5, 10.00/1.3
16.00 — 24 TG	9.00/1.5, 10.00/1.3

[a] The tyre and rim/wheel manufacturers shall however be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

[b] For radial tyres, replace the dash in the size designation with “R”.

[c] Maximum 16 PR or one star “★”.

[d] See ISO 4250-3 for rim contours.

Bibliography

[1] ISO 3877-1, *Tyres, valves and tubes — List of equivalent terms — Part 1: Tyres*

[2] ISO 4251-3, *Tyres (ply rating marked series) and rims for agricultural tractors and machines — Part 3: Rims*

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