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

Part 1 :

Tyre designation and dimensions

*Pneus et jantes (séries existantes) pour tracteurs et machines agricoles — Partie 1 :
Désignation et cotes des pneumatiques*

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Reference number
ISO 4251-1:1988 (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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4251-1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*.

This third edition cancels and replaces the second edition (ISO 4251-1:1984), of which it constitutes a minor revision, incorporating Amendment 1: 1986 (new table 4).

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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

Part 1 : Tyre designation and dimensions

1 Scope and field of application

This part of ISO 4251 sets out the designation in use and the dimensions of existing series of tyres for agricultural tractors and machines.

Tyre load ratings, rim dimensions, and tyre classification and nomenclature are given in ISO 4251-2, ISO 4251-3, and ISO 4251-4 respectively.

2 References

ISO 3965, *Agricultural wheeled tractors — Determination of maximum travel speed.*

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

3 Definitions

For the purposes of this part of ISO 4251, the definitions given in ISO 4223-1 apply.

4 Marking

The marking of existing series of tyres consists of designations of the tyre size and load rating, and additional information.

4.1 Tyre size

The present size markings for the identification of tyres consist of the nominal tyre width code and the nominal rim diameter code.

Examples : Tyre 13.6 — 28, or tyre 6.50 — 16

For tyres of radial construction, the letter "R" replaces the dash.

Example : Tyre 13.6 R 28

For low section height tyres, the letter "L" is added to the nominal tyre width code.

Example : Tyre 9.5 L — 15

For low section height tractor steering wheel tyres of diagonal construction, an optional marking may be used in the following manner:

nominal tyre width code/nominal aspect ratio . . . rim diameter.

Example : Tyre 9.5/85 — 15

4.2 Load rating

The present marking of load rating comprises the ply rating.

Example : Tyre 13.6 — 28 8 PR

4.3 Additional information

Tubeless tyres may be marked with the word "TUBELESS".

Additionally, classification code markings indicating tyre classifications may be used as described in ISO 4251-4, but they are not part of the size marking of the tyre.

5 Dimensions and tolerances

5.1 Agricultural drive wheels — Tractor tyres

Standard sizes, measurement rims, design dimensions of new tyres, and maximum tyre dimensions in service are given in

- table 1 for tyres of diagonal construction with normal section height;
- table 2 for tyres of radial construction with normal section height;
- table 3 for tyres of diagonal construction with low section height;
- table 4 for tyres of radial construction with low section height;
- table 5 for tyres of diagonal construction for special cultivation work;
- table 6 for tyres of radial construction for special cultivation work.

5.2 Agricultural steering wheels — Tractor tyres

Standard sizes, measurement rims, design dimensions of new tyres, and maximum tyre dimensions in service are given in

- a) table 7 for tyres of diagonal construction with normal section height;
- b) table 8 for tyres of diagonal construction with low section height.

5.3 Agricultural implement tyres

Standard sizes, measurement rims, design dimensions of new tyres, and maximum tyre dimensions in service are given in

- a) table 10 for tyres of diagonal construction with normal section height;
- b) table 11 for tyres of diagonal construction with low section height.

6 Dynamic radius indices

Dynamic radius indices are parameters used exclusively for the calculation of forward ground speed during homologation procedures (see ISO 3965).

Values are given in table 9 for agricultural drive wheel tractor tyres of diagonal and radial construction with normal section height and of diagonal construction with low section height.

They apply to tyres inflated to the inflation pressures given in ISO 4251-2 and having tyre loads corresponding to 50 % of the maximum values at 30 km/h.

7 Tubes

Whenever a tube is required it should be identified by the same designation as the tyre size in which it is to be mounted.

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Table 1 — Agricultural drive wheels — Tractor tyres (diagonal construction — normal section height) — Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter ²⁾
8.3 — 24	7	211	995	228	1 019
9.5 — 24	8	241	1 050	260	1 076
9.5 — 32			1 250		1 276
9.5 — 36			1 355		1 381
11.2 — 24	10	284	1 105	307	1 135
11.2 — 28			1 205		1 235
12.4 — 24	11	315	1 160	340	1 192
12.4 — 28			1 260		1 292
12.4 — 32			1 360		1 392
12.4 — 36			1 465		1 497
12.4 — 38			1 515		1 547
13.6 — 24	12	345	1 210	373	1 246
13.6 — 28			1 310		1 346
13.6 — 36			1 515		1 551
13.6 — 38			1 565		1 601
14.9 — 24	13	378	1 265	408	1 305
14.9 — 26			1 315		1 355
14.9 — 28			1 365		1 405
14.9 — 30			1 415		1 455
14.9 — 38			1 615		1 655
15.5 — 38	14	394	1 570	426	1 606
16.9 — 24	15	429	1 335	463	1 379
16.9 — 26			1 385		1 429
16.9 — 28			1 435		1 479
16.9 — 30			1 485		1 529
16.9 — 34			1 585		1 629
16.9 — 38			1 690		1 734
18.4 — 26	16	467	1 450	504	1 498
18.4 — 30			1 550		1 598
18.4 — 34			1 650		1 698
18.4 — 38			1 750		1 798
20.8 — 34	18	528	1 735	570	1 787
20.8 — 38			1 835		1 887
23.1 — 26	20	587	1 605	634	1 661
23.1 — 30			1 705		1 761
23.1 — 34			1 805		1 861
24.5 — 32	21	622	1 805	672	1 865

1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of -3% on design section height.

2) Figures are based on tyres with classification code R-1. The tractor manufacturer must recognize that tyres with deep tread and related increased overall diameter may be used.

Table 2 — Agricultural drive wheels — Tractor tyres (radial construction — normal section height) — Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter
8.3 R 24	7	211	985	228	1 001
9.5 R 24	8	241	1 040	260	1 058
9.5 R 32			1 245		1 263
9.5 R 36			1 345		1 363
11.2 R 24	10	284	1 095	307	1 115
11.2 R 28			1 200		1 220
12.4 R 24	11	315	1 145	340	1 167
12.4 R 28			1 250		1 272
12.4 R 32			1 350		1 372
12.4 R 36			1 450		1 472
12.4 R 38			1 500		1 522
13.6 R 24	12	345	1 190	373	1 214
13.6 R 28			1 295		1 319
13.6 R 36			1 500		1 524
13.6 R 38			1 550		1 574
14.9 R 24	13	378	1 245	408	1 271
14.9 R 26			1 295		1 321
14.9 R 28			1 350		1 376
14.9 R 30			1 400		1 426
15.5 R 38	14	394	1 565	426	1 589
16.9 R 24	15	429	1 320	463	1 349
16.9 R 26			1 370		1 399
16.9 R 28			1 420		1 449
16.9 R 30			1 475		1 504
16.9 R 34			1 575		1 604
16.9 R 38			1 675		1 704
18.4 R 26	16	467	1 440	504	1 482
18.4 R 30			1 545		1 582
18.4 R 34			1 645		1 682
18.4 R 38			1 750		1 782
20.8 R 34	18	528	1 735	570	1 770
20.8 R 38			1 835		1 870

1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of -4 % on design section height.

Table 3 — Agricultural drive wheels — Tractor tyres (diagonal construction — low section height) — Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter ²⁾
28 L — 26 ³⁾	25	714	1 615	771	1 673
30.5 L — 32	27	775	1 820	837	1 881

1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of -3 % on design section height.

2) Figures are based on tyres with classification code R-1. The tractor manufacturer must recognize that tyres with deep tread and increased overall diameter may be used.

3) Optional size designation 28.1 — 26.

Table 4 – Agricultural drive wheels – Tractor tyres (radial construction – low section height) – Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter
30.5 L R 32	27	775	1 820	837	1 860

1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of -4% on design section height.

Table 5 – Agricultural drive wheels – Tractor tyres for special cultivation work (diagonal construction) – Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter	Maximum overall width	Maximum overall diameter
7.2 – 36 7.2 – 40	6.0	183	1 250 1 350	198	1 270 1 370
8.3 – 36 8.3 – 42 8.3 – 44	7.0	211	1 300 1 450 1 500	228	1 320 1 475 1 525
9.5 – 36 9.5 – 44 9.5 – 48	8.0	241	1 355 1 555 1 655	260	1 380 1 580 1 680

Table 6 – Agricultural drive wheels – Tractor tyres for special cultivation work (radial construction) – Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter	Maximum overall width	Maximum overall diameter
8.3 R 36 8.3 R 42 8.3 R 44	7.0	211	1 290 1 440 1 495	228	1 315 1 465 1 520
9.5 R 36 9.5 R 44 9.5 R 48	8.0	241	1 345 1 550 1 650	260	1 365 1 575 1 675

Table 7 – Agricultural steering wheels – Tractor tyres (diagonal construction – normal section height) – Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Measurement rim width Code	Design new tyre		In service	
		Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter ²⁾
4.00 – 12 4.00 – 15	3	112	535 610	122	553 628
5.00 – 15	4	140	655	153	677
5.50 – 16	4	150	710	164	734
6.00 – 16	4.5	165	735	180	761
6.50 – 16 6.50 – 20	4.5	175	760 865	191	788 894
7.50 – 16 7.50 – 18 7.50 – 20	5.5	205	805 860 915	223	837 892 948
9.00 – 16	6	234	855	255	891
10.00 – 16	8	274	895	299	934
11.00 – 16	10	315	965	343	1 010

- 1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of –3 % on design section height.
- 2) Figures are based on tyres with classification code F-2.

Table 8 – Agricultural steering wheels – Tractor tyres (diagonal construction – low section height) – Standard sizes, measurement rims, and dimensions

Dimensions in millimetres

Tyre size designation	Optional size marking	Measurement rim width Code	Design new tyre		In service	
			Section width	Overall diameter ¹⁾	Maximum overall width	Maximum overall diameter ²⁾
7.5 L – 15	8.25/85 – 15	6	210	745	229	774
9.5 L – 15	9.5 /85 – 15	8	240	785	262	817
11 L – 15	11.5 /75 – 15	8	280	815	305	850
14 L – 16.1	14.0 /80 – 16.1	11	360	985	392	1 031

- 1) Minimum new tyre overall diameter shall be calculated on the basis of a tolerance of –3 % on design section height.
- 2) Figures are based on tyres with classification code F-2.

**Table 9 — Dynamic radius indices for calculation
of the forward ground speed¹⁾
(tyres of diagonal and radial construction)**

Tyre size designation		Dynamic radius indices ²⁾ mm
Diagonal	Radial	
8.3 — 24	8.3 R 24	470
9.5 — 24	9.5 R 24	495
9.5 — 32	9.5 R 32	595
9.5 — 36	9.5 R 36	645
11.2 — 24	11.2 R 24	515
11.2 — 28	11.2 R 28	565
12.4 — 24	12.4 R 24	540
12.4 — 28	12.4 R 28	590
12.4 — 32	12.4 R 32	640
12.4 — 36	12.4 R 36	690
12.4 — 38	12.4 R 38	720
13.6 — 24	13.6 R 24	560
13.6 — 28	13.6 R 28	610
13.6 — 36	13.6 R 36	715
13.6 — 38	13.6 R 38	740
14.9 — 24	14.9 R 24	590
14.9 — 26	14.9 R 26	615
14.9 — 28	14.9 R 28	640
14.9 — 30	14.9 R 30	665
14.9 — 38		765
15.5 — 38	15.5 R 38	745
16.9 — 24	16.9 R 24	620
16.9 — 26	16.9 R 26	645
16.9 — 28	16.9 R 28	670
16.9 — 30	16.9 R 30	695
16.9 — 34	16.9 R 34	745
16.9 — 38	16.9 R 38	795
18.4 — 26	18.4 R 26	670
18.4 — 30	18.4 R 30	720
18.4 — 34	18.4 R 34	770
18.4 — 38	18.4 R 38	820
20.8 — 34	20.8 R 34	810
20.8 — 38	20.8 R 38	855
23.1 — 26		730
23.1 — 30		790
23.1 — 34		840
24.5 — 32		835
28 L — 26		730
30.5 L — 32		845

1) Designers are reminded that practical speed limits may be imposed by appropriate legislative bodies.

2) The values listed do not include the manufacturing tolerances of the tyres.