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**Tyres (ply rating marked series) and rims  
for agricultural tractors and machines —**

**Part 2:**  
Tyre load ratings

*Pneumatiques (série à marquage équivalent nappes) et jantes pour  
tracteurs et machines agricoles —*

*Partie 2: Capacités de charge des pneumatiques*



## 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.

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.

International Standard ISO 4251-2 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 5, *Agricultural tyres and rims*.

This fifth edition cancels and replaces the fourth edition (ISO 4251-2:1992), of which it constitutes a technical revision.

ISO 4251 consists of the following parts, under the general title *Tyres (ply rating marked series) and rims for agricultural tractors and machines*:

- *Part 1: Tyre designation and dimensions, and approved rim contours*
- *Part 2: Tyre load ratings*
- *Part 3: Rims*
- *Part 4: Tyre classification and nomenclature*
- *Part 5: Log skidder tyres*

Annexes A and B of this part of ISO 4251 are for information only.

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International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet iso@iso.ch

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# Tyres (ply rating marked series) and rims for agricultural tractors and machines —

## Part 2: Tyre load ratings

### 1 Scope

This part of ISO 4251 specifies load ratings for the ply rating marked series of tyres for agricultural tractors and machines.

Tyre designation and dimensions, and approved rim contours, rim dimensions, and tyre classification and nomenclature are given in ISO 4251-1, ISO 4251-3 and ISO 4251-4 respectively.

Service description (load index and speed symbol) marking for existing series (ply rating marked series) of agricultural tractor drive-wheel tyres of radial construction are given in ISO 8664.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 4251. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4251 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4223-1:1989, *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 and the following definitions apply.

#### 3.1

##### **load/inflation pressure relationship**

loads as given in the tables which are maximum values and are valid for the reference inflation pressures indicated

#### 3.2

##### **cyclic loading application**

gradual increase of pay load to maximum allowable load with unloading before off-field transport

## 4 Tyres loads

### 4.1 Agricultural drive wheels — Tractor tyres

Basic tyre loads for a maximum speed of 30 km/h, and corresponding reference inflation pressures are given in

- a) table 1 for tyres of diagonal construction with normal section height;
- b) table 2 for tyres of diagonal construction with low section height.

On combine harvesters in cyclic loading application, except hillside combines, a load of up to 170 % of the basic tyre loads given in tables 1 and 2 is permitted for speeds up to 10 km/h with an inflation pressure increase of approximately 30 % (consult tyre manufacturers). This load increase shall include all possible field and user modifications that increase the vehicle mass. The wheel and rim manufacturers shall be consulted concerning the strength of the wheels.

Tyre loads at different speeds (load/speed relationship) are given in table 3 for tyres of diagonal construction with normal section height and tyres of diagonal construction with low section height.

Load for tyres in dual application for a maximum speed of 30 km/h, and corresponding reference inflation pressures are given in

- a) table 4 for tyres of diagonal construction with normal section height;
- b) table 5 for tyres of diagonal construction with low section height.

Loads for tyres of diagonal and radial construction for special cultivation work and corresponding reference inflation pressures are given in

- a) table 6 for a maximum speed of 30 km/h;
- b) table 7 for cultivation work at a maximum speed of 10 km/h.

### 4.2 Agricultural steering wheels — Tractor tyres

Basic tyre loads for a maximum speed of 30 km/h, and corresponding reference inflation pressures are given in

- a) table 8 for tyres of diagonal construction with normal section height;
- b) table 9 for tyres of diagonal construction with low section height.

Tyre loads at different speeds (load/speed relationship) are given in table 10 for tyres of diagonal construction with normal and low sections.

### 4.3 Agricultural implement tyres

Basic tyre loads for a maximum speed of 30 km/h, tyre loads for other speeds and special applications and corresponding reference inflation pressures are given in

- a) table 11 for tyres of diagonal construction with normal section height;
- b) table 12 for tyres of diagonal construction with low section height.

**Table 1 — Agricultural drive wheels — Tractor tyres (diagonal construction — normal section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	4 PR		6 PR		8 PR		10 PR		12 PR		14 PR	
	BTL kg	IP kPa										
8.3 – 24	625	160	810	240								
9.5 – 24	740		940		1 110							
9.5 – 32	840	140	1 065	210	1 260	280						
9.5 – 36	890		1 130		1 335							
11.2 – 24	845		1 045		1 225		1 380	300				
11.2 – 28	900	130	1 115	180	1 305	240						
12.4 – 24	945		1 200		1 415							
12.4 – 28	1 005		1 275		1 510							
12.4 – 32	1 070	110	1 355	170	1 605	230	1 800	280				
12.4 – 36	1 135		1 440		1 700							
12.4 – 38	1 165		1 480		1 750							
13.6 – 24	1 030		1 340		1 545		1 790					
13.6 – 28	1 100	100	1 430	160	1 645	200	1 910	250				
13.6 – 36	1 240		1 615		1 855		2 150					
13.6 – 38	1 275		1 660		1 910		2 215					
14.9 – 24			1 510		1 760		1 990					
14.9 – 26			1 560		1 820		2 055					
14.9 – 28			1 610	140	1 880	180	2 120	230				
14.9 – 30			1 665		1 940		2 190					
14.9 – 38			1 870		2 180		2 460					
15.5 – 38			1 765	140	2 060	180	2 320	230				
16.9 – 24			1 725		2 040		2 230					
16.9 – 26			1 780		2 105		2 305					
16.9 – 28			1 840	130	2 175	170	2 380	200	2 730	240		
16.9 – 30			1 900		2 245		2 455					
16.9 – 34			2 015		2 380		2 605					
16.9 – 38			2 130		2 520		2 760					
18.4 – 26			1 990		2 265		2 645		2 985			
18.4 – 30			2 120		2 415		2 815		3 180			
18.4 – 34			2 250	110	2 565	140	2 990	180	3 375	230	3 630	260
18.4 – 38			2 380		2 715		3 165		3 575			
18.4 – 42					2 865		3 340		3 765			
20.8 – 34					2 920		3 285		3 785			
20.8 – 38					3 090	130	3 475	160	4 000	200		
20.8 – 42							3 670		4 225			
23.1 – 26					2 850		3 245		3 610		3 970	200
23.1 – 30					3 025	110	3 460	140	3 850	170		
23.1 – 34					3 225		3 675		4 090			
24.5 – 32							3 950	140	4 390	170		

**Table 2 — Agricultural drive wheels — Tractor tyres (diagonal construction — low section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	10 PR		12 PR		14 PR	
	BTL kg	IP kPa	BTL kg	IP kPa	BTL kg	IP kPa
28 L – 26	3 460	120	3 785	140	4 245	170
30.5 L – 32			4 745	140		

**Table 3 — Agricultural drive wheels — Tractor tyres — Tyre loads at different speeds (load/speed relationship)**

Maximum speed <sup>1)</sup> km/h	Maximum tyre load <sup>2)</sup>
10 <sup>3)</sup>	140
20	120
25	107
30	100

1) The values given for the maximum tyre loads also apply when drive wheel tractor tyres are fitted on the front axles (steering wheels).

2) Expressed as a percentage of the basic tyre loads given in tables 1 and 2. If national legislation permits speeds in excess of 30 km/h, for example up to 40 km/h, a tyre load of 90 % of the basic tyre load shall be permitted at a speed of 35 km/h, and a tyre load of 80 % of the basic tyre load shall be permitted at a speed of 40 km/h. Tyres intended for higher speeds, for example multipurpose applications (MPT), will form the subject of a future International Standard.

3) This applies to drive wheel tractor tyres fitted on front axles of front-end loaders used in intermittent service. Tyre inflation pressures have to be increased by 30 kPa for operating at these overloads.

**Table 4 — Agricultural drive wheels — Tractor tyres used as duals (diagonal construction — normal section height) — Load per tyre (L) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	4 PR		6 PR		8 PR		10 PR		12 PR		14 PR	
	L kg	IP kPa										
8.3 – 24	550	160	715	240								
9.5 – 24	650		825		975							
9.5 – 32	740	140	935	210	1 110	280						
9.5 – 36	785		995		1 175							
11.2 – 24	745	130	920	180	1 080	240	1 215	300				
11.2 – 28	790		980		1 150							
12.4 – 24	830		1 055		1 245							
12.4 – 28	885		1 120		1 330							
12.4 – 32	940	110	1 190	170	1 410	230	1 580	280				
12.4 – 36	1 000		1 265		1 495							
12.4 – 38	1 025		1 300		1 540							
13.6 – 24	905		1 180		1 360		1 575					
13.6 – 28	970	100	1 260	160	1 450	200	1 680	250				
13.6 – 36	1 090		1 420		1 630		1 890					
13.6 – 38	1 120		1 460		1 680		1 950					
14.9 – 24			1 330		1 550		1 750					
14.9 – 26			1 375		1 600		1 810					
14.9 – 28			1 415	140	1 650	180	1 865	230				
14.9 – 30			1 465		1 705		1 925					
14.9 – 38			1 645		1 920		2 165					
15.5 – 38			1 555	140	1 815	180	2 040	230				
16.9 – 24			1 520		1 795		1 960					
16.9 – 26			1 565		1 850		2 030					
16.9 – 28			1 620	130	1 915	170	2 095					
16.9 – 30			1 670		1 975		2 160	200	2 400	240		
16.9 – 34			1 775		2 095		2 290					
16.9 – 38			1 875		2 220		2 430					
18.4 – 26			1 750		1 995		2 330		2 625			
18.4 – 30			1 865		2 125		2 475		2 800			
18.4 – 34			1 980	110	2 255	140	2 630	180	2 970	230	3 190	260
18.4 – 38			2 095		2 390		2 785		3 145			
18.4 – 42					2 520		2 940		3 315			
20.8 – 34					2 570		2 890		3 330			
20.8 – 38					2 720	130	3 060	160	3 520	200		
20.8 – 42							3 230		3 720			
23.1 – 26					2 510		2 855		3 175		3 490	200
23.1 – 30					2 670	110	3 045	140	3 390	170		
23.1 – 34					2 840		3 235		3 600			
24.5 – 32							3 475	140	3 865	170		

**Table 5 — Agricultural drive wheels — Tractor tyres used as duals (diagonal construction — low section height) — Load per tyre (L) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	10 PR		12 PR		14 PR	
	L kg	IP kPa	L kg	IP kPa	L kg	IP kPa
28 L – 26	3 045	120	3 330	140	3 735	170
30.5 L – 32			4 000	130		

**Table 6 — Agricultural drive wheels — Tractor tyres for special cultivation work (diagonal and radial construction) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size		6 PR		8 PR	
Diagonal	Radial	BTL kg	IP kPa	BTL kg	IP kPa
7.2 – 36 7.2 – 40		865 935	280	1 005 1 090	370
8.3 – 36 8.3 – 42 8.3 – 44	8.3 R 36 8.3 R 42 8.3 R 44	970 1 055 1 080	240	1 160 1 255 1 290	320
9.5 – 36 9.5 – 44 9.5 – 48	9.5 R 36 9.5 R 44 9.5 R 48	1 130 1 255 1 320	210	1 335 1 485 1 560	280

**Table 7 — Agricultural drive wheels — Tractor tyres for special cultivation work (diagonal and radial construction) — Tyre loads (L) for special cultivation work at a maximum speed of 10 km/h and reference inflation pressures (IP)**

Tyre size		6 PR		8 PR	
Diagonal	Radial	L kg	IP kPa	L kg	IP kPa
7.2 – 36 7.2 – 40		1 115 1 180	290	1 325 1 400	390
8.3 – 36 8.3 – 42 8.3 – 44	8.3 R 36 8.3 R 42 8.3 R 44	1 290 1 400 1 440	260	1 535 1 665 1 710	350
9.5 – 36 9.5 – 44 9.5 – 48	9.5 R 36 9.5 R 44 9.5 R 48	1 495 1 665 1 750	230	1 750 1 945 2 045	300

NOTE — Special cultivation work excludes road application except field to farm transit at speeds not exceeding 25 km/h.

**Table 8 — Agricultural steering wheels — Tractor tyres (diagonal construction — normal section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	4 PR		6 PR		8 PR		10 PR	
	BTL kg	IP kPa	BTL kg	IP kPa	BTL kg	IP kPa	BTL kg	IP kPa
4.00 – 12 4.00 – 15	250 300	340						
5.00 – 15	365	280	465	420				
5.50 – 16	425	250	525	370				
6.00 – 16	450	230	560	340	675	450		
6.50 – 16 6.50 – 20	510 600	230	615 725	310	735 865	420		
7.50 – 16 7.50 – 18 7.50 – 20	605 655 710	200	745 810 875	280	870 945 1 020	370		
9.00 – 16			900	230	1 080	310	1 245	390
10.00 – 16			965	200	1 190	280	1 325	340
11.00 – 16			1 140	200	1 320	250	1 485	310

**Table 9 — Agricultural steering wheels — Tractor tyres (diagonal construction — low section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	Optional size marking	4 PR		6 PR		8 PR		10 PR		12 PR	
		BTL kg	IP kPa								
7.5 L – 15	8.25/85 – 15	585	200	720	280	840	370				
9.5 L – 15	9.5/85 – 15			770	230	930	310				
11 L – 15	11.5/75 – 15			865	200	1 070	280	1 190	340	1 355	420

**Table 10 — Agricultural steering wheels — Tractor tyres — Tyre loads at different speeds (load/speed relationship)**

Maximum speed km/h	Maximum tyre load <sup>1)</sup>
Front-end loaders: 10 <sup>2)</sup>	200
10	150
20	135
25	115
30	100

1) Expressed as a percentage of the basic tyre loads given in tables 8 and 9. If national legislation permits speeds in excess of 30 km/h, for example up to 40 km/h, a tyre load of 90 % of the basic tyre load shall be permitted at a speed of 35 km/h, and a tyre load of 80 % of the basic tyre load shall be permitted at a speed of 40 km/h. Tyres intended for higher speeds, for example multipurpose applications (MPT), will form the subject of a future International Standard.

2) This applies to steering wheel tractor tyres of 6 PR and more fitted on front axles of front-end loaders used in agricultural intermittent service for short distances (100 m maximum). Tyre inflation pressures have to be increased by 30 kPa for operating at these overloads.

**Table 11 — Agricultural implement tyres (diagonal construction — normal section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size	2 PR		4 PR		6 PR		8 PR		10 PR	
	BTL kg	IP kPa								
4.00 – 8	155	150	225	275						
4.00 – 12	210	150	300	275						
4.00 – 15			355	275						
5.00 – 15			430	225						
5.50 – 16			500	200						
5.90 – 15			480	200						
6.00 – 16			570	200	685	275				
6.40 – 15			555	200	670	275				
6.50 – 16			640	200	775	275				
7.00 – 12			555	175	680	250				
7.50 – 16			700	150	890	225	1 100	325	1 240	400
7.50 – 18			720	150	950	225				
7.50 – 20			775	150	980	225				
7.50 – 24			830	160			1 270	325		
9.00 – 16							1 315	275	1 445	325
10.00 – 15							1 425	240		
11.25 – 24							1 860	200		
11.25 – 28							1 925	200	2 245	260

**NOTES**

1 For speeds up to a maximum of 10 km/h, loads may be increased by 20 % with an inflation pressure increase of up to 30 % (consult tyre and rim manufacturers).

2 On agricultural trailers operated on improved surfaces at speeds up to a maximum of 30 km/h, loads may be increased by 20 % with a 30 % increase in inflation pressure where national standardization does not impose restrictions (consult tyre and rim manufacturers).

**Table 12 — Agricultural implement tyres (diagonal construction — low section height) — Basic tyre loads (BTL) for a maximum speed of 30 km/h and reference inflation pressures (IP)**

Tyre size designation	4 PR		6 PR		8 PR		10 PR		12 PR		14 PR		16 PR	
	BTL kg	IP kPa												
5.5/85 – 9					655	500								
10.0/80 – 12	815	150	1 040	230	1 240	310								
10.5/80 – 18			1 430	220	1 710	300	1 935	370						
12.0/75 – 18			1 555	190	1 880	260	2 160	330						
12.5/80 – 18			1 790	190	2 090	250	2 375	310	2 625	370	2 910	430	3 130	490
13.0/65 – 18			1 530	180	1 810	240	2 070	300	2 310	360	2 555	430	2 750	490
14.0/65 – 16					1 860	230	2 120	280			2 580	400		
14.5/75 – 20					2 530	220								
15.0/70 – 18					2 260	210	2 575	260	2 890	310	3 115	360		
16.0/70 – 20					2 645	200	3 015	250	3 355	300	3 670	350	3 970	400
9.5 L – 15			895	190	1 100	280								
11 L – 15			950	170	1 130	220	1 285	280						
11 L – 16			995	170	1 175	220	1 340	280						

**NOTES**

1 For speeds up to a maximum of 10 km/h, loads may be increased by 20 % with an inflation pressure increase of up to 30 % (consult tyre and rim manufacturers).

2 On agricultural trailers operated on improved surfaces at speeds up to a maximum of 30 km/h, loads may be increased by 20 % with a 30 % increase in inflation pressure where national standardization does not impose restrictions (consult tyre and rim manufacturers).