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

**Part 2:  
Tyre load ratings**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**  
*Pneumatiques (série à marquage “PR”) et jantes pour tracteurs et  
machines agricoles —  
Partie 2: Capacités de charge des pneumatiques*

ISO 4251-2:2017

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## iTeh STANDARD PREVIEW (standards.iteh.ai)

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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](http://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](http://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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by ISO/TC 31, *Tyres, rims and valves*, SC 5, *Agricultural tyres and rims*.

This seventh edition cancels and replaces the sixth edition (ISO 4251-2:2005) which has been technically revised. It also replaces ISO 4251-2:2005/Amd. 1.

The seventh edition contains the following main changes:

- a new term “hillside combine” was added to the terms and definition clause;
- the tables have been updated incorporating Amendment 1.

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

## Part 2: Tyre load ratings

### 1 Scope

This document establishes the load ratings of the ply rating marked series of tyres for agricultural tractors and machines.

Tyre designation and dimensions, and approved rim contours are given in ISO 4251-1.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

### 3 Terms and definitions

ISO 4251-2:2017

For the purposes of this document the terms and definitions given in ISO 4223-1 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 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 payload to maximum allowable load with unloading before off-field transport

#### 3.3

##### **hillside combine**

combine intended for service on slopes above 11° (20%) lateral slope

### 4 Tyre loads

#### 4.1 Agricultural drive wheels — Tractor tyres

Basic tyre loads for tyres of diagonal construction, used as singles at a maximum speed of 30 km/h, and reference inflation pressures are given in [Table 1](#).

On combine harvesters in cyclic loading service, except hillside combines, a load of up to 170 % of the basic tyre loads given in [Table 1](#) 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 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 2](#) for tyres of diagonal construction with normal section height and tyres of diagonal construction with low section height.

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

- a) [Table 3](#) for a maximum speed of 30 km/h;
- b) [Table 4](#) for cultivation work at a maximum speed of 10 km/h.

For tyre load and inflation pressure recommendations for combine harvesters in transport service, the tyre manufacturer shall be consulted.

## 4.2 Agricultural steering wheels — Tractor tyres

Basic tyre loads at a maximum speed of 30 km/h, and their corresponding reference inflation pressures are given in [Table 5](#) for tyres of diagonal construction.

Tyre loads at different speeds (load speed relationship) are given in [Table 6](#) for tyres of diagonal construction with normal and low section heights.

On combine harvesters in cyclic loading application, except hillside combines, a load of up to 150 % of the basic tyre loads given in [Table 6](#) is permitted for speeds up to 10 km/h. This load increase shall include all possible field and user modifications that increase vehicle mass. The wheel and rim manufacturers shall be consulted concerning the strength of the wheel.

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## 4.3 Agricultural implement tyres

Basic tyre loads at a maximum speed of 30 km/h and their corresponding reference inflation pressures are given in [Table 7](#) for tyres of diagonal construction.

**Table 1 — Agricultural drive wheels — Tractor tyres (diagonal construction) — Basic tyre loads (BTL) for tires used as singles at a maximum speed of 30 km/h and at reference inflation pressures (IP)**

Tyre size designation	Load index LI	Ply rating PR	Basic tyre load BTL kg	Inflation pressure IP kPa
8.3 – 16	81	4	462	150
	90	6	600	230
8.3 – 24	92	4	630	160
	100	6	800	240
8.3 – 36	107	6	975	230
	113	8	1 150	320
8.3 – 38	108	6	1 000	230
	114	8	1 180	320
8.3 – 42	111	6	1 090	230
	117	8	1 285	320
8.3 – 44	111	6	1 090	230
	117	8	1 285	320

Table 1 (continued)

Tyre size designation	Load index LI	Ply rating PR	Basic tyre load BTL kg	Inflation pressure IP kPa
9.5 – 16	88	4	560	140
	96	6	710	210
9.5 – 22	103	6	875	210
	106	8	950	280
9.5 – 24	97	4	730	160
	106	6	950	240
9.5 – 32	102	4	850	140
	110	6	1 060	210
	116	8	1 250	280
9.5 – 36	104	4	900	140
	112	6	1 120	210
	118	8	1 320	280
9.5 – 38	113	6	1 150	210
	119	8	1 360	280
9.5 – 42	115	6	1 215	210
	121	8	1 450	280
9.5 – 44	116	6	1 250	210
	122	8	1 500	280
9.5 – 48	118	6	1 320	210
	123	8	1 550	280
11.2 – 20	105	6	925	180
	112	8	1 120	250
11.2 – 24	102	4	850	130
	110	6	1 060	180
	116	8	1 250	240
	119	10	1 360	300
11.2 – 28	104	4	900	130
	112	6	1 120	180
	118	8	1 320	240
11.2 – 36	109	4	1 030	120
11.2 – 38	110	4	1 060	120
11.2 – 42	119	6	1 360	180
	125	8	1 650	250
12.4 – 16	111	8	1 090	220
	119	12	1 360	330
12.4 – 24	106	4	950	110
	115	6	1 215	170
	120	8	1 400	230
12.4 – 28	109	4	1 030	110
	117	6	1 285	170
	122	8	1 500	230

Table 1 (continued)

Tyre size designation	Load index LI	Ply rating PR	Basic tyre load BTL kg	Inflation pressure IP kPa
12.4 – 32	110	4	1 060	110
	119	6	1 360	170
	124	8	1 600	230
	128	10	1 600	280
12.4 – 36	112	4	1 120	110
	121	6	1 450	170
	126	8	1 700	230
12.4 – 38	113	4	1 150	110
	122	6	1 500	170
	127	8	1 750	230
12.4 – 42	115	4	1 215	110
	123	6	1 550	170
12.4 – 46	125	6	1 650	170
	131	8	1 950	220
13.6 – 16	100	4	800	100
	109	6	1 030	150
	114	8	1 180	190
13.6 – 24	109	4	1 030	100
	118	6	1 320	160
	123	8	1 550	200
	128	10	1 800	250
13.6 – 28	112	4	1 120	100
	121	6	1 450	160
	125	8	1 650	200
	130	10	1 900	250
13.6 – 36	116	4	1 250	100
	125	6	1 650	160
	129	8	1 850	200
	134	10	2 120	250
13.6 – 38	117	4	1 285	100
	126	6	1 700	160
	131	8	1 950	200
	136	10	2 240	250
13.6 – 46	129	6	1 850	150
	134	8	2 120	190
13.6 – 48	130	6	1 900	150
	135	8	2 180	190
14.9 – 24	112	4	1 120	80
	123	6	1 550	140
	128	8	1 800	180
	132	10	2 000	230
	124	6	1 600	140



Table 1 (continued)

Tyre size designation	Load index LI	Ply rating PR	Basic tyre load BTL kg	Inflation pressure IP kPa
14.9 – 26	129	8	1 850	180
	133	10	2 060	230
14.9 – 28	112	4	1 120	110
	125	6	1 650	140
	130	8	1 900	180
	134	10	2 120	230
14.9 – 30	126	6	1 700	140
	131	8	1 950	180
	135	10	2 180	230
14.9 – 38	129	6	1 850	140
	135	8	2 180	180
	139	10	2 430	230
15.5 – 38	127	6	1 750	140
	133	8	2 060	180
	137	10	2 300	230
16.9 – 24	126	6	1 700	130
	133	8	2 050	170
	136	10	2 240	200
16.9 – 26	128	6	1 800	130
	134	8	2 120	170
	137	10	2 300	200
16.9 – 28	129	6	1 850	130
	135	8	2 180	170
	139	10	2 430	200
	143	12	2 725	240
16.9 – 30	130	6	1 900	130
	137	8	2 300	170
	140	10	2 500	200
16.9 – 34	133	6	2 060	130
	139	8	2 430	170
	142	10	2 650	200
16.9 – 38	135	6	2 180	130
	141	8	2 575	170
	143	10	2 725	200
18.4 – 24	131	6	1 950	110
	135	8	2 180	140
	141	10	2 575	180
	145	12	2 900	220
18.4 – 26	132	6	2 000	110
	136	8	2 240	140
	142	10	2 650	160
	146	12	3 000	230

**Table 1** (continued)

<b>Tyre size designation</b>	<b>Load index LI</b>	<b>Ply rating PR</b>	<b>Basic tyre load BTL kg</b>	<b>Inflation pressure IP kPa</b>
18.4 – 28	133	6	2 060	110
	138	8	2 360	140
	143	10	2 725	180
	147	12	3 075	220
18.4 – 30	134	6	2 120	110
	139	8	2 430	140
	145	10	2 900	180
	149	12	3 250	230
18.4 – 34	137	6	2 300	110
	142	8	2 650	140
	146	10	3 000	180
	150	12	3 350	230
	153	14	3 650	260
18.4 – 38	139	6	2 430	110
	143	8	2 725	140
	146	10	3 150	180
	152	12	3 550	230
18.4 – 42	145	8	2 900	140
	150	10	3 350	180
	154	12	3 750	230
18.4 – 46	142	6	2 650	110
	146	8	3 000	140
20.8 – 34	145	8	2 900	130
	149	10	3 250	160
	154	12	3 750	200
20.8 – 38	148	8	3 150	130
	151	10	3 450	160
	156	12	4 000	200
20.8 – 42	153	10	3 650	160
	156	12	4 250	200
23.1 – 26	145	8	2 900	110
	149	10	3 250	140
	153	12	3 650	170
	156	14	4 000	200
23.1 – 30	146	8	3 000	110
	151	10	3 450	140
	155	12	3 875	170
23.1 – 34	149	8	3 250	110
	153	10	3 650	140
	157	12	4 125	170
24.5 – 32	156	10	4 000	140
	159	12	4 375	170

Table 1 (continued)

Tyre size designation	Load index LI	Ply rating PR	Basic tyre load BTL kg	Inflation pressure IP kPa
17.5L – 24	123	6	1 550	110
	129	8	1 650	150
	134	10	2 120	190
19.5L – 24	134	8	2 120	140
	138	10	2 360	170
	142	12	2 650	210
21L – 24	141	10	2 575	150
	146	12	3 000	190
	151	18	3 450	250
28L – 26	151	10	3 450	120
	154	12	3 750	140
	158	14	4 250	170
30.5L – 32	162	12	4 750	140
VA30.5L – 32	162	12	4 750	140
DH35.5L – 32	179	20	7 750	190
VA35.5L – 32	179	20	7 750	190

Table 2 — Agricultural drive wheels — Tractor tyres — Tyre loads at different speeds (load/speed relationship)

Maximum speed <sup>a</sup> km/h	Maximum tyre load <sup>b</sup> %
10 <sup>c</sup>	140
20	120
25	107
30	100

<sup>a</sup> The values given for the maximum tyre load also apply when drive wheel traction tyres are fitted on the front axles (steering wheels).

<sup>b</sup> Expressed as a percentage of the basic tyre loads given in Table 1. 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 basis 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 speed of 40 km/h. Tyres intended for higher speeds, for example multipurpose applications (MPT), will form the subject of a future International Standard.

<sup>c</sup> This applies to drive wheel tractor tyres fitted on front-end loaders used in intermittent service. Tyre inflation pressure shall be increased by 30 kPa for operating at these overloads.

Table 3 — Agricultural drive wheel — Tractor tyres for special cultivation work (diagonal and radial constructions) — Basic tyre loads (BTL) at a maximum speed of 30 km/h and at reference inflation pressures (IP)

Tyre size designation		6 PR		8 PR	
Diagonal	Radial	BTL kg	IP kPa	BTL kg	IP kPa
8.3 – 36	8.3 R 36	970	240	1 060	320
8.3 – 38	8.3 R 38				
8.3 – 42	8.3 R 42	1 055		1 255	
8.3 – 44	8.3 R 44	1 080		1 290	