INTERNATIONAL STANDARD

ISO 8664

Third edition
2018-08

Tyres for agricultural tractors and machines — Code-designated and service-description marked radial drive-wheel tyres

Pneumatiques pour tracteurs et machines agricoles — Pneumatiques radiaux pour roues motrices portant une désignation de dimension par code et une description d'utilisation

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Reference number
ISO 8664:2018(E)

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Published in Switzerland

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Foreword

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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).

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For an explanation on the voluntary nature of standards, 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.

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

This third edition cancels and replaces the second edition (ISO 8664:2005), which has been technically revised. It also incorporates the Amendment ISO 8664:2005/Amd1:2010. The main changes compared to the previous edition are as follows:

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— information already contained in other International standards has been removed and replaced with normative references to these standards;

— A6 speed symbol for radial code designated tyres has been deleted;

— the document has been aligned with other standards developed by SC 5 and with existing regulations;

— the values of SRI have been updated to the most recent data as given by ETRTO;

— approved rim contours have been added (Table C.1).

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Tyres for agricultural tractors and machines — Code-designated and service-description marked radial drive-wheel tyres

1 Scope

This document specifies the marking, dimensions, load ratings and reference speeds for code-designated agricultural tractor drive-wheel tyres with service description (load index and speed symbol).

It applies to tyres of radial construction in the speed categories 40 km/h (speed symbol A8), and 50 km/h (speed symbol B).

NOTE Code designated series of:

— diagonal (ply rating marked) tyres for agricultural tractors and machines are specified in ISO 4251-1 and ISO 4251-2;

— tyres for logging and forestry machines are specified in ISO 18807[1)];

— tyres for construction/industrial tractors are specified in ISO 13442.

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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*

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3 Terms and definitions

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
cyclic loading
gradual increase of payload to maximum allowable load with unloading before off-field transport

3.2
basic tyre load
tyre load-carrying capacity indicated by the tyre's load index at the reference speed indicated by the tyre's speed symbol

Note 1 to entry: When used as dual tyres, the load per tyre shall be reduced to 88 % of the single tyre load.

1) To be published.

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3.3
high and sustained torque
condition that occurs when high continuous tractive effort is applied to the drawbar or hitch

Note 1 to entry: Vehicles equipped with injectors or any other ground engaging attachment (e.g. ploughing) or dragging objects are considered to be operating in a high and sustained torque mode. Vehicles pulling carts or trailers are also considered to be operating in a high torque mode when operating on slopes greater than 11° (20 %) lateral slope.

4 Tyre marking

4.1 General

The tyre marking shall consist of the designation of the dimensional and constructional characteristics (tyre size designation), the service description (load index and speed symbol) and any other additional markings (see example in Figure 1).

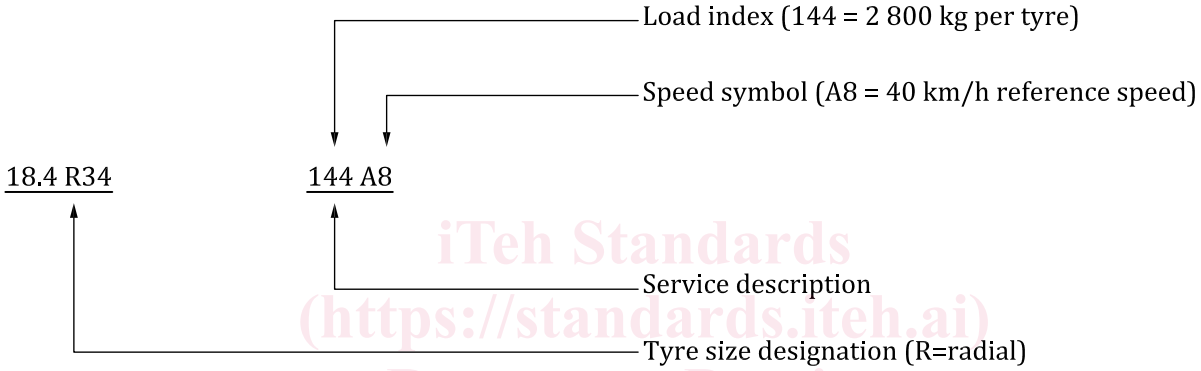

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Figure 1 — Example of tyre marking

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4.2 Supplementary service description

Tyres may also be marked with an additional service description, indicated within a circle, to identify a special type of service (load rating and speed category) for which the tyre size is also allowed in addition to the applicable load variation with speed (see example in Figure 2).

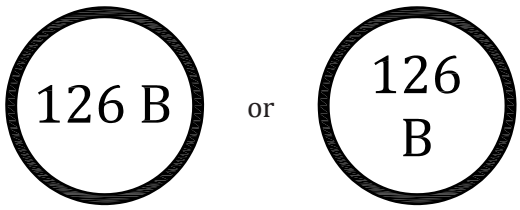

Figure 2 — Example of additional service description

Load variations of Table 1 are not applicable to the supplementary service description. See examples of load ratings in 7.3.

4.3 Additional information

4.3.1 In the case of tubeless tyres, the marking "**TUBELESS**" shall be shown on the tyre.

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4.3.2 In the case of a preferred direction of rotation of the tyre, an arrow may be used to indicate that direction.

4.4 Tyre classification and nomenclature

A tyre classification code may be used to describe the primary field of application of the tyre as detailed in ISO 18805.

4.5 Tyre maximum pressure for bead seating pictogram

Conformity to some regional regulations requires the inscription "xxx kPa MAX" or "xxx bar MAX" inside a pictogram (see Figure 3) to indicate the cold inflation pressure that shall not be exceeded for bead seating during tyre mounting.

The level of the seating pressure is determined by the tyre manufacturer.

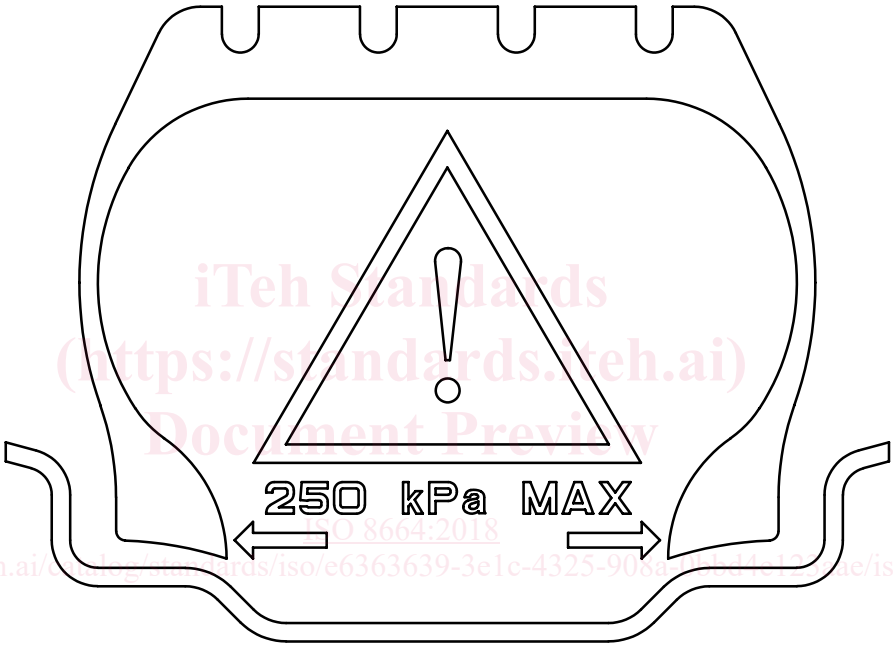

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Figure 3 — Pictogram

5 Tyre dimensions

Standard sizes, measurement rims, tyre design dimensions and maximum tyre dimensions in service shall be as given in Annex A (see Table A.1).

New tyre design dimensions are used for tyre design purposes only.

Maximum dimensions in service are for use by vehicle manufacturers in designing for tyre clearance.

Approved rim contours shall be as given in Annex C (see Table C.1).

6 Tyre load ratings

Load indices, basic tyre loads and reference inflation pressures shall be as given in Annex B.

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7 Tyre applications other than at reference speed

7.1 General

For applications without high and sustained torques, including road transport, the load/speed relationship is given in Table 1.

The tyre manufacturer concerned shall be consulted for the actual pressure to be used when applying the load/speed relationship given in Table 1.

The rim/wheel manufacturer shall be consulted for confirmation of the strength of the rim/wheel for the intended service.

Table 1 — Load/speed relationship

Service speed km/h	**Maximum tyre load** %[a] Speed symbol	
	A8	**B**
10	150	150
15	134	134
20	123	123
25	111	111
30	107	107
35	103	103
40	100	100
45	96	100
50	91	100

[a] Expressed as a percentage of the basic tyre loads given in Annex B.

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7.2 Field applications with high and sustained torque

For applications with high and sustained torque, loads in Annex B can by increased up to 7 %.

7.3 Tyres marked with additional service description

Examples of tyre load carrying capacities at various service speeds for tyres marked with a supplementary service description are given in Table 2.

Table 2 — Load carrying capacity of tyre with supplementary service description — Example of tyre size 16.9R38

Service speed km/h	**Service description**	
	145 A8	**145 A8 (145 B)**
	Tyre load carrying capacities (kg)	
25	3 220	3 220
30	3 105	3 105
35	2 985	2 985
40	2 900	2 900
45	2 785	2 900
50	2 640	2 900

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8 Tyre application on combine harvesters

On combine harvesters in cyclic loading application, except hillside combines, a load of up to 170 % of the basic tyre loads given in Annex B is permitted for speeds up to 10 km/h with an inflation pressure increase of approximately 30 % (consult the tyre manufacturer). This load increase shall include all possible field and user modifications that increase the vehicle mass and shall apply only to load increases which occur during the harvesting process.

When not in cyclic application (e.g. grain tanks are empty during transport), the loads in Table 1 apply.

For hillside operations over 11° (20 %) slope (see Figure 4), only the basic tyre loads are permitted.

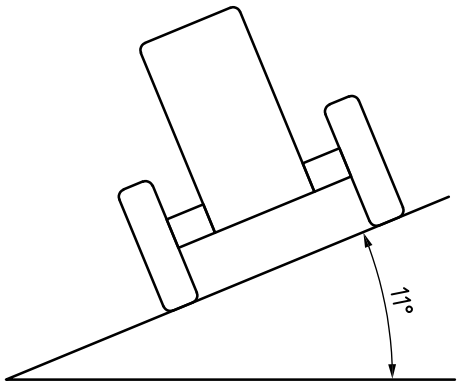

Figure 4 — Hillside operations over 11° (20 %) slope

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The rim and wheel manufacturer shall be consulted concerning the strength of the wheels.

9 Tyre parameters for vehicle speed reference

Rolling circumference (RC), rolling circumference index (RCI) and speed radius index (SRI) are parameters which are used exclusively for the calculation of forward ground speed during homologation procedures (for further information, see ISO 3965 and ISO 11795).

Values shall be as given in Annex D (see Table D.1).

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Annex A
(normative)

Tyre size designations, measurement rims and tyre dimensions

Table A.1 — Standard sizes, measurement rims, tyre design dimensions and maximum tyre dimensions in service

Dimensions in millimetres

Tyre size designation	Measurement rim width code	Design tyre		In service	
		Section width	Overall diameter[a]	Maximum overall width	Maximum overall diameter[a]
Normal section height tyres					
8.3R24	7.00	211	985	228	1 000
9.5R24	8.00	241	1 040	260	1 080
9.5R28			1 140		1 155
11.2R20	10.00	284	995	307	1 015
11.2R24			1 095		1 115
11.2R28			1 200		1 220
11.2R36			1 400		1 420
11.2R38			1 455		1 475
12.4R20	11.00	315	1 045	340	1 070
12.4R24			1 145		1 170
12.4R28			1 250		1 275
12.4R32			1 350		1 375
12.4R36			1 450		1 475
12.4R38			1 500		1 525
12.4R54			1 921		1 943
13.6R24	12.00	345	1 190	373	1 215
13.6R28			1 295		1 320
13.6R36			1 500		1 525
13.6R38			1 550		1 575
14.9R24	13.00	378	1 245	408	1 275
14.9R26			1 295		1 325
14.9R28			1 350		1 380
14.9R30			1 400		1 425
14.9R34			1 519		1 545
14.9R38			1 600		1 630
14.9R46			1 824		1 851
15.5R38	14.00	394	1 570	426	1 595

[a] Figures are based on regular service tyres. The tyre manufacturer shall be consulted if tyres with deviating profiles are used.

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