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Tyres and rims for logging and forestry service

Pneumatiques et jantes pour pneumatiques pour engins forestiers et de débardage du bois

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Foreword

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ISO 18807 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 5, *Agricultural tyres and rims*.

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Introduction

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Tyres and rims for logging and forestry service

1 Scope

This standard sets out the designation, dimensions, load ratings and rim coordination of logging and forestry service tyres of diagonal and radial construction.

Rim dimensions are given in ISO 18804

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 4223-1:1989, *Tyres and rims (existing series) for agricultural tractors and machines — Part 1: Pneumatic tyres*

ISO 18804, *Rims for agricultural, forestry and construction machines*

3 Terms and definitions

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

3.1

Logging or forestry machine tyre applications

Tyres for use on machines/equipment used in forestry applications, in high torque (HT) service (e.g. Skidders) or low torque (LT) service (e.g. Forwarders) and for short transports on roads.

3.2

Basic tyre load conditions

3.2.1

Code and three part designated tyres

3.2.1.2

Tyres in non skidder service

Maximum load of total vehicle mass with accessories plus mass transfer that is imposed on an individual tyre due to total radial forces during operation are the basis for load determination. The reference speed is A6.

3.2.1.2

Tyres in skidder service

Maximum load of total vehicle mass with accessories plus load increases due to log winching or grappling loads and mass transfer that is imposed on an individual tyre due to total radial forces during operation are the basis for load determination. The reference speed is A2.

3.2..2

Metric tyres in high torque or low torque service

The maximum load a tyre is permitted to carry under specific operating conditions is specified. The reference is the static condition of a fully loaded vehicle with accessories on a plain ground adapted for transport.

4 Marking

4.1 Code designated tyres with ply rating marking

The marking of ply rating marked series of logging and forestry service tyres shall consist of designations of the tyre size and ply rating and optionally the suffix marking LS after the size designation.

4.1.1 Conventional designated sizes, Diagonal

For conventional size marked tyres The designation consists of the nominal tyre width code, the nominal rim diameter code and ply rating.

EXAMPLE 1 23.1-26 14PR or 23.1-26 LS 14PR

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

EXAMPLE 2 30.5L32 16PR or 30.5L-32 LS 16PR

4.1.2 3-part designated sizes, Diagonal

For 3-part size designation tires The size is shown as nominal OD code x nominal width code – nominal rim diameter code and ply rating.

These sizes may have an optional suffix of —NHSII after the size designation.

EXAMPLE 3 66x43.00-26 NHS 12PR
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If a specific rim contour is required for a given tyre, it shall be added as a prefix to the size marking.

EXAMPLE 4 DH35.5L-32 12PR or DH73x44.00-32 NHS 12PR

4.2 Metric designated tyres with service descriptions

4.2.1 Metric diagonal tyres

The marking shall consist of nominal section width, nominal aspect ratio, nominal rim diameter code with the suffix marking LS and service description.

EXAMPLE 5 710/55 -34 LS 161A8 161A2 HT / 168A2 LT For tyres using 5° rims

EXAMPLE 6 600/55 -26.5 LS 154A8 154A2 HT / 161A2 LT For tyres using 15° rims

4.2.2 Metric radial tyres

The marking shall consist of nominal section width, nominal aspect ratio, radial identification, nominal rim diameter code with the suffix marking LS and service description.

EXAMPLE 710/45 R 26.5 LS 168A8 168A2 HT / 175A2 LT For tyres using 15° rims

4.2.3 Tyre Classification Codes

The classification codes LS-1 LS-2, LS-3, LS-4, HF-1, HF-2, HF-3 and HF-4 as defined in ISO (4251-4 XXXX) apply to forestry and logging tyres.

5 Dimensions and tolerances

5.1 Code designated and ply rating marked sizes

5.1.1 Conventional designated sizes, Diagonal

Size designation, measuring rim width code, measurements (section width and overall diameter) for design new tyre and tyre in service are given in Table 1

Tyre outside diameter is based on the tyre having LS-2 tread depth.

5.1.2 3-part designated sizes, Diagonal

Size designation, measuring rim width code, measurements (section width and overall diameter) for design new tyre and tyre in service are given in Table 2

Tyre outside diameter are based on the tyre having HF-2 tread depth.

5.2 Metric designated sizes with service descriptions for use on 5° or 15° tapered rims

5.2.1 Diagonal sizes

Size designation, measuring rim width code, measurements (section width and overall diameter) for design new tyre and tyre in service are given in Table 3.

Tyre outside diameter is based on the tyre having LS-1 tread depth.

5.2.2 Radial sizes

Size designation, measuring rim width code, measurements (section width and overall diameter) for design new tyre and tyre in service are given in Table 4.

Tyre outside diameter is based on the tyre having LS-1 tread depth.

Table 1 — Code designated tyres - Diagonal

Dimensions in millimetres

Tyre size designation	Measurement	Design new tyre ^a		In service ^b	
	Rim width code	Section width <i>S</i>	Overall diameter <i>c</i> <i>Do</i>	Maximum overall width <i>Wmax.</i>	Maximum overall diameter ^c <i>Do, max</i>
Normal section height Tyres					
16.9-30	15.00	429	1511	464	1555
18.4-26	16.00	467	1476	505	1525
18.4-30	16.00	467	1577	505	1626
18.4-34	16.00	467	1679	505	1728
23.1-26	20.00	587	1632	634	1691
24.5-32	21.00	622	1831	672	1892
Low section height Tyres					
28L-26	25.00	714	1644	771	1703
30.5L-32	27.00	775	1847	837	1909
DH35.5L-32	31.00	902	2011	974	2083
<p>^a Design new tyre dimensions quoted are used for tyre design purposes only.</p> <p>^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:</p> $W_{max} = S(1 + a)$ <p>Where</p> <p><i>S</i> is the design new tyre section width;</p> $a = 0,08$ <p>The maximum overall diameter in-service is given by the equation:</p> $Do, max = (Do - D)(1 + b) + D$ <p>Where</p> <p><i>D</i> is the rim diameter specified in ISO xxxx</p> $b = 0,06$ <p>^c Figures are based on tyres with LS-2 tread depth. The machine manufacturer should recognize that tyres with deep or extra deep tread and corresponding increased overall diameter may be used.</p>					

Table 2 — Three-part size designated tyres - Diagonal

Dimensions in millimetres

Tyre size designation	Measurement	Design new tyre ^a		In service ^b	
	Rim width code	Section width <i>S</i>	Overall diameter <i>c</i> <i>Do</i>	Maximum overall width <i>Wmax.</i>	Maximum overall diameter ^c <i>Do, max</i>
54x37.00-25NHS	32.00	940	1397	1034	1473
66x43.00-25NHS	36.00	1054	1702	1160	1808
66x43.00-26NHS	36.00	1054	1702	1160	1806
67x34.00-25NHS	30.00	864	1727	950	1836
67x34.00-26NHS	30.00	864	1727	950	1834
68x50.00-32NHS	44.00	1270	1753	1397	1847
DH73x44.00-32	36.00	1118	1880	1229	1986
DH73x50.00-32	44.00	1270	1880	1397	1986
76x50.00-32 NHS	44.00	1270	1956	1397	2070

^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 xxxx

$$b = 0,10$$

^c Figures are based on tyres with HF-2 tread depth. The machine manufacturer should recognize that tyres with deep or extra deep tread and corresponding increased overall diameter may be used.