
**Tyres for mobile cranes and similar
specialized machines**

Pneumatiques pour grues mobiles et engins spéciaux similaires

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Published in Switzerland

Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 10571 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 6, *Off-the-road tyres and rims*.

This second edition cancels and replaces the first edition (ISO 10571:1995), which has been technically revised.

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Tyres for mobile cranes and similar specialized machines

1 Scope

This International Standard specifies the designation, dimensions, load ratings and reference speed for tyres and rims fitted to vehicles such as all-terrain equipment, mobile cranes, crash tenders, etc. likely to operate on highway over long distances at reference speed and under constant load.

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 3877-1, *Tyres, valves and tubes — List of equivalent terms — Part 1: Tyres*

ISO 4209-1:2001, *Truck and bus tyres and rims (metric series) — Part 1: Tyres*

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

ISO 4250-3, *Earth-mover tyres and rims — Part 3: Rims*

3 Terms and definitions

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

NOTE Equivalent terms are given in ISO 3877-1.

4 Tyre designation and marking

The designation of the tyre shall be shown on its sidewall and shall include the details in 4.1. Additional markings as shown in 4.2, 4.3 and 4.4 may also be included as required by regional regulations or practices.

4.1 Tyre size designation and service description

Tyres for mobile cranes in accordance with this International Standard shall be indicated as follows:

Nominal section width	Nominal aspect ratio	Tyre construction code	Nominal rim diameter code	Service description
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4.1.1 Nominal section width

The nominal section width shall be expressed in millimetres, ending in “5”. See Annex A for nominal section width steps.

4.1.2 Nominal aspect ratio

The nominal aspect ratio shall be expressed as a percentage and shall be a multiple of 5.

4.1.3 Tyre construction code

The tyre construction code shall be as follows:

— (dash) for diagonal/bias construction

“R” for radial ply construction.

In addition, the word “RADIAL” may also appear on the tyre.

4.1.4 Nominal rim diameter code

The nominal rim diameter shall be expressed by a code, in accordance with ISO 4250-3.

4.1.5 Service description

The service description may be indicated as follows:

Load index Speed symbol

4.1.5.1 Load index

The load index is a numerical code associated with the maximum load a tyre can carry at the speed indicated by its speed symbol.

The correlation between load indices and tyre load-carrying capacity (TLCC) is as given in Table 1.

4.1.5.2 Speed symbol

The speed symbol indicates the speed category at which the tyre can carry the load corresponding to its load index.

Tyres for mobile cranes in accordance with this International Standard have speed symbol “E” or “F”, which correspond to 70 km/h and 80 km/h respectively.

4.2 Service identification (Regional option)

The word “ROAD” may be used to identify these tyres that can be used on roads over long distances at reference speed and under constant load.

4.3 Load range (Regional option)

Where required by regional regulations, the tyre load range shall be as shown in Table 2.

4.4 Other service characteristics

4.4.1 In the case of tubeless tyres, the marking “TUBELESS” shall be shown on the tyre.

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

4.5 Example

A mobile crane tyre having

- a) a size and construction of
 - nominal section width 605 mm,
 - nominal aspect ratio 80,
 - radial construction,
 - nominal rim diameter code 25;
- b) a service description of
 - load-carrying capacity 10 000 kg “Load Index 188”,
 - reference speed 70 km/h “Speed Symbol E”,
 - reference inflation pressure of 700 kPa “Load Range L”;
- c) other characteristics:
 - service identification “ROAD”;

shall be marked

605/80R25 188E ROAD Load Range L

5 Tyre dimensions

Tables 3 and 4 show, for 95 and 80 series tyres, respectively,

- a) the tyre designation as indicated in Clause 4;
- b) the measuring rim width code;
- c) the design tyre dimensions, i.e. section width and overall diameter;
- d) the maximum tyre dimensions in-service.

6 Tyre load capacities

6.1 Basic tyre loads

Basic tyre load ratings at 70 km/h (speed symbol E) reference speed are given in Tables 5 and 6 for 95 and 80 series tyres, respectively, and at 80 km/h (speed symbol F) reference speed, in Tables 7 and 8, for the 95 and 80 series tyres, respectively.

6.2 Limitations

In some countries there can be load/speed/inflation pressure limitations because of national requirements.

6.3 Tyre loads at speeds other than reference speed

When a tyre is fitted on a vehicle with a maximum speed capability different from the tyre reference speed, load capacities shall be modified as shown in Tables 9 and 10.

6.4 Tyre selection

Speed Symbol E tyres are used primarily for cranes with low speed capability (rough terrain applications). Cranes with higher speed capability (all-terrain applications) can require a Speed Symbol F tyre. Speed Symbol E and F tyres are not interchangeable on a given application because of the difference in their load carrying capability at the same speed. (Refer to Tables 5, 6, 7 and 8.)

7 Approved rim contours

Approved rim contours are given in Tables 11 and 12 for 95 series and 80 series tyres, respectively. For rim dimensions, see ISO 4250-3.

Table 1 — Correlation between load index (LI) and tyre load-carrying capacity (TLCC)

Load index	TLCC kg	Load index	TLCC kg	Load index	TLCC kg	Load index	TLCC kg
130	1 900	150	3 350	170	6 000	190	10 600
131	1 950	151	3 450	171	6 150	191	10 900
132	2 000	152	3 550	172	6 300	192	11 200
133	2 060	153	3 650	173	6 500	193	11 500
134	2 120	154	3 750	174	6 700	194	11 800
135	2 180	155	3 875	175	6 900	195	12 150
136	2 240	156	4 000	176	7 100	196	12 500
137	2 300	157	4 125	177	7 300	197	12 850
138	2 360	158	4 250	178	7 500	198	13 200
139	2 430	159	4 375	179	7 750	199	13 600
140	2 500	160	4 500	180	8 000	200	14 000
141	2 575	161	4 625	181	8 250		
142	2 650	162	4 750	182	8 500		
143	2 725	163	4 875	183	8 750		
144	2 800	164	5 000	184	9 000		
145	2 900	165	5 150	185	9 250		
146	3 000	166	5 300	186	9 500		
147	3 075	167	5 450	187	9 750		
148	3 150	168	5 600	188	10 000		
149	3 250	169	5 800	189	10 300		

Table 2 — Correlation between load range and reference inflation pressure

Reference inflation pressure kPa	Tyre load range
700	L
800	M
900	N
1 000	P

Table 3 — 95 series tyre dimensions

Dimensions in millimetres

Tyre size designation	Measuring rim width code	Design tyre		In-service tyre	
		Section width	Overall diameter	Maximum overall width	Maximum overall diameter
385/95 R 24	10.00	379	1 369	409	1 415
385/95 R 25	10.00	379	1 369	409	1 415
445/95 R 25	11.25	435	1 481	483	1 549
505/95 R 25	13.00	496	1 595	551	1 672
575/95 R 25	15.00	566	1 727	628	1 814

Table 4 — 80 series tyre dimensions

Dimensions in millimetres

Tyre size designation	Measuring rim width code	Design tyre		In-service tyre	
		Section width	Overall diameter	Maximum overall width	Maximum overall diameter
395/80 R 25	12.00	391	1 267	434	1 317
445/80 R 25	14.00	445	1 347	494	1 404
525/80 R 25	17.00	530	1 475	588	1 542
605/80 R 25	19.50	610	1 603	677	1 680
685/80 R 25	22.00	689	1 731	765	1 819

Table 5 — Basic tyre load ratings for 95 series speed symbol E tyres

Tyre size designation	Load index	Basic tyre load kg	Reference inflation pressure kPa	Optional load range
385/95 R 24	170	6 000	900	N
385/95 R 25	170	6 000	900	N
445/95 R 25	177	7 300	900	N
505/95 R 25	186	9 500	900	N
575/95 R 25	193	11 500	900	N

Table 6 — Basic tyre load ratings for 80 series speed symbol E tyres

Tyre size designation	Load index	Basic tyre load kg	Reference inflation pressure kPa	Optional load range
395/80 R 25	165	5 150	700	L
445/80 R 25	170	6 000	700	L
525/80 R 25	179	7 750	700	L
605/80 R 25	188	10 000	700	L
685/80 R 25	195	12 150	700	L

Table 7 — Basic tyre load ratings for 95 series speed symbol F tyres

Tyre size designation	Load Index	Basic tyre load kg	Reference inflation pressure kPa	Optional load range
385/95 R 24	170	6 000	900	N
385/95 R 25	170	6 000	900	N
445/95 R 25	174	6 700	900	N

Table 8 — Basic tyre load ratings for 80 series speed symbol F tyres

Tyre size designation	Load index	Basic tyre load kg	Reference inflation pressure kPa	Optional load range
445/80 R 25	170	6 000	700	L
525/80 R 25	176	7 100	700	L

Table 9 — Variation in load carrying capacity with speed for speed symbol E tyres

Operating speed km/h	Tyre load capacity expressed as a percentage of load capacity at reference speed
30	130
40	124
50	118
60	112
70 (reference speed)	100
80	82
90	70
100	60

Table 10 — Variation in load carrying capacity with speed for speed symbol F tyres

Operating speed km/h	Tyre load capacity expressed as a percentage of load capacity at reference speed
30	125
40	115
50	112
60	110
70	105
80 (reference speed)	100
90	94
100	85

Table 11 — Approved rim contours for 95 series tyres

Tyre size designation ^a	Approved rims
385/95 R 24	10.00/1.5
385/95 R 25	10.00/1.5 and 9.5/1.7CR
445/95 R 25	11.25/2.0 and 11.00/1.7CR
505/95 R 25	13.00/2.5
575/95 R 25	15.00/3.5

^a The tyre and rim wheel manufacturer should be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service or for use of alternative rims.

Table 12 — Approved rim contours for 80 series tyres

Tyre size designation ^a	Approved rims
395/80 R 25	12.00/1.3
445/80 R 25	14.00/1.5 and 14.00/1.7CR
525/80 R 25	17.00/2.0 and 17.00/1.7CR
605/80 R 25	19.50/2.5
685/80 R 25	22.00/3.0

^a The tyre and rim wheel manufacturer should be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service or for use of alternative rims.