

INTERNATIONAL STANDARD

ISO
10571

First edition
1995-10-01

Tyres for mobile cranes and similar specialized machines

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Pneumatiques pour grues mobiles et engins spéciaux similaires

ISO 10571:1995

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Reference number
ISO 10571:1995(E)

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

Annex A forms an integral part of this International Standard.

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, cranes, crash tenders, etc. likely to operate on the highway over long distances at reference speed and under constant load.

definitions in ISO 4223-1 apply; equivalent terms are given in ISO 3877-1.

2 Normative references

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

ISO 3877-1:1978, *Tyres, valves and tubes — List of equivalent terms — Part 1: Tyres.*

ISO 4209-1:1993, *Truck and bus tyres and rims (metric series) — Part 1: Tyres.*

ISO 4223-1:1989, *Definitions of some terms used in the tyre industry — Part 1: Pneumatic tyres.*

ISO 4250-3:—¹⁾, *Earth-mover tyres and rims — Part 3: Rims.*

3 Definitions

For the purposes of this International Standard, the

4 Tyre designation and marking

The designation of the tyre shall be shown on its sidewall and shall include the details in 4.1; it may also include those in 4.2 and 4.3.

4.1 Tyre size and construction code

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 | ROAD |
|-----------------------------|----------------------------|------------------------------|---------------------------------|------|
|-----------------------------|----------------------------|------------------------------|---------------------------------|------|

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:

— “R” for radial ply tyres.

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

1) To be published. (Revision of ISO 4250-3:1987)

4.1.4 Nominal rim diameter

The nominal rim diameter shall be expressed by a code, as specified in ISO 4250-3:—, table 6.

4.1.5 Service identification

The word "ROAD" shall be used to identify these tyres which can be used on roads over long distances at reference speed and under constant load.

4.2 Service description

The service description may be indicated as follows:

| | |
|------------|--------------|
| Load index | Speed symbol |
|------------|--------------|

4.2.1 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.

4.2.2 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 the speed symbol "E", which corresponds to 70 km/h.

4.3 Other service characteristics

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

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

4.4 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,
- reference speed 70 km/h,
- service identification "ROAD";

shall be marked

| |
|------------------------|
| 605/80 R 25 188/E ROAD |
|------------------------|

5 Tyre dimensions

Tables 2 and 3 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 loads at 70 km/h (speed symbol E) reference speed and reference inflation pressures for 95 and 80 series tyres are given in tables 4 and 5 respectively.

6.2 Limitations

In some countries there may 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 table 6.

7 Approved rim contours

Approved rim contours are given in tables 7 and 8 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 | 3 455 | 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 | | |

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Table 2 — 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 3 — 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 4 — Basic tyre load ratings for 95 series tyres

| Tyre size designation | Load index | Basic tyre load kg | Reference inflation pressure kPa |
|------------------------------|-------------------|------------------------------|--|
| 385/95 R 24 | 190 | 6 000 | 900 |
| 385/95 R 25 | 170 | 6 000 | 900 |
| 445/95 R 25 | 177 | 7 300 | 900 |
| 505/95 R 25 | 186 | 9 500 | 900 |
| 575/95 R 25 | 193 | 11 500 | 900 |

Table 5 — Basic tyre load ratings for 80 series tyres

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

Table 6 — Tyre load-carrying capacity at various speeds

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| Operating speed km/h | Tyre load capacity as 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 7 — Approved rim contours for 95 series tyres

| Tyre size designation¹⁾ | Approved rims |
|---|----------------------|
| 385/95 R 24 | 10.00/1.5 |
| 385/95 R 25 | 10.00/1.5 |
| 445/95 R 25 | 11.25/2.0 |
| 505/95 R 25 | 13.00/2.5 |
| 575/95 R 25 | 15.00/3.5 |

1) 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 8 — Approved rim contours for 80 series tyres

| Tyre size designation¹⁾ | Approved rims |
|---|----------------------|
| 395/80 R 24 | 12.00/1.3 |
| 445/80 R 25 | 14.00/1.5 |
| 525/80 R 25 | 17.00/2.0 |
| 605/80 R 25 | 19.50/2.5 |
| 685/80 R 25 | 22.00/3.0 |

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Annex A
(normative)

Nominal section width steps

| Tyre | Nominal section width | Increments |
|-----------|------------------------------|-----------------------------------|
| | | mm |
| 95 series | ≤ 385 | (follow ISO 4209-1:1993, annex B) |
| | ≥ 385 and ≤ 505 | 60 |
| | ≥ 505 and ≤ 925 | 70 |
| | ≥ 925 | 100 |
| 80 series | ≤ 445 | 50 |
| | ≥ 445 and ≤ 685 | 80 |
| | ≥ 685 and $\leq 1\,185$ | 100 |
| | $\geq 1\,185$ | 120 |

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