INTERNATIONAL STANDARD



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION ORGANISATION INTERNATIONALE DE NORMALISATION MEЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Narrow and wide base off-road tyres and rims -

Part 1: Tyre designation and dimensions iTeh STANDARD PREVIEW

Pneumatiques et jantes à base étroite et à base large pour engins de genie civil -

Partie 1: Désignation et cotes des pneumatiques

https://standards.iteh.ai/catalog/standards/sist/e8d67295-8722-4d02-8e43-10f3bf51cc26/iso-4250-1-1988



Reference number ISO 4250-1:1988 (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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4250-1 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves.*

ISO 4250-1:1988

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This first edition and the first editions of ISO 4250-2 and ISO 4250-3 cancel and replace ISO/TR 4250 : 1980, the three parts together constituting a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Narrow and wide base off-road tyres and rims —

Part 1: Tyre designation and dimensions

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0 Introduction

(standards.itghrai) designation

ISO 4250 provides technical details on the designation and 1:1988 The designation of tyres shall include the details in 5.1 and 5.2; dimensions of off-road tyres and rims, as well as load ratings it may include those in 5.3. for these types of tyres.

This International Standard consists of three parts:

Part 1: Tyre designations and dimensions.

Part 2: Loads and inflation pressures.

Part 3: Rims.

1 Scope

This part of ISO 4250 sets out designations and dimensions for narrow and wide base off-road tyres and recommended rims.

2 Field of application

This part of ISO 4250 applies to tyres primarily intended for offroad machines.

3 References

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

ISO 4250-3, Narrow and wide base off-road tyres and rims -- Part 3: Rims.

4 Definitions

For definitions of terms relating to tyres, see ISO 4223-1.

5.1 Tyre size and construction code

Tyres shall be designated by a two-part size marking (nominal section width — nominal rim diameter code) except as noted in the tables. Diagonal ply construction shall not be specially marked. Radial ply construction shall be identified by the letter "R" instead of the dash, before the rim diameter in the size designation. In addition, the word "radial" may also appear on the tyre.

5.2 Index of tyre strength

The term is used to identify a given tyre with its maximum recommended load when used in a specific type of service.

5.3 Other markings

Other markings may be added, for example as in 5.3.1 to 5.3.4.

5.3.1 Preferred direction of rotation

The marking to indicate the preferred direction of rotation shall be an arrow.

5.3.2 Tubeless tyres

Tyres shall be marked "TUBELESS", if applicable.

Code system for tyre usage 5.3.3

Tyres may be identified by their type of service and tread design as indicated in tables 1 and 2 respectively.

| Tai | ble | 1 | | Type | of | service |
|-----|-----|---|--|------|----|---------|
|-----|-----|---|--|------|----|---------|

| Service code | Type of service |
|--------------|---|
| С | Compactor |
| E | Earth-moving (dumper and tractor-scraper) |
| G | Grader |
| L L | Loader |

NOTE - The use of these identification codes is at the discretion of the individual tyre manufacturer.

| Code | Tread type | | | |
|-----------|---------------------------------|---|--|--|
| C-1 | Smooth | Recommended minimum dual spacing shall be design sec | | |
| C-2 | Grooved | width \times 1,2. | | |
| E-1 | Rib | | | |
| E-2 | Traction | | | |
| E-3 | Rock | 8 Recommended rims | | |
| E-4 | Rock (deep tread) | DARD PREVIEW | | |
| E-7 | Flotation | Recommended rims are given as follows: | | |
| G-1 | Rib (Stand | Table 6 : Narrow base tyres. | | |
| G-2 | Traction | | | |
| G-3 | Rock | <u>O 4250- ITable</u> 7 : Wide base tyres. | | |
| L-2 | htractionndards.iteh.ai/catalog | /standards/sist/e8d67295-8722-4d02-8e43- | | |
| L-3 | Rock 10f3bf51 | cc26/iso-4200 19 1988 to base tyres on 15° contour nms. | | |
| L-4 * *** | Rock (deep tread) | | | |
| L-5 | Rock (extra deep tread) | | | |

Table 2 - Tread design

NOTES

1 The use of these identification codes is at the discretion of the individual tyre manufacturer.

2 Where smooth treads are used in the "L" series, this should be denoted by the suffix "S" (for example, L-5S).

3 Code types 1, 2 and 3 are designated as normal tread depth.

5.3.4 Semi-drop centre rims

"TG" shall be used to identify tyres mounted on semi-drop centre (SDC) rims (see ISO 4250-3).

Tyre dimensions 6

Tyre dimensions shall be as listed :

Table 3 : Narrow base tyres.

Table 4 : Wide base tyres.

Table 5 : Narrow base tyres on 15° rim contours.

Dual spacing 7

tion

Method of measurement of tyre 9 dimensions

Before measuring, tyres shall be mounted on a measuring rim, inflated to the recommended pressure, and allowed to stand for a minimum of 24 h at normal room temperature, after which the inflation pressure shall be readjusted to the original value.

| | | | | D | imensions in millimetres |
|----------------|--------------------------|-------------------------------|---|--------------------------|---|
| Turne eine | Measuring rim | Design new tyre ¹⁾ | | In-service ²⁾ | |
| designation | width Code | Section width | Overall diameter ³⁾ | Maximum overall width | Maximum overall diameter ³⁾ |
| 12.00 - 20, 21 | 8.50 | 315 | 1 146 | 340 | 1 184 |
| 12.00 — 24, 25 | 8.50 | 315 | 1 247 | 340 | 1 285 |
| 13.00 — 24, 25 | 10.00 | 351 | 1 301 | 379 | 1 342 |
| 14.00 - 20, 21 | 10.00 | 375 | 1 266 | 405 | 1 311 |
| 14.00 — 24, 25 | 10.00 | 375 | 1 368 | 405 | 1 414 |
| 16.00 - 20, 21 | 11.25 | 432 | 1 391 | 480 | 1 460 |
| 16.00 — 24, 25 | 11.25 | 432 | 1 493 | 480 | 1 561 |
| 18.00 - 24, 25 | 13.00 | 498 | 1 615 | 553 | 1 693 |
| 18.00 — 33 | 13.00 | 498 | 1 818 | 553 | 1 896 |
| 18.00 — 49 | 13.00 | 498 | 2 227 | 553 | 2 306 |
| 21.00 - 24, 25 | 15.00 | 571 | 1 750 | 634 | 1 839 |
| 21.00 — 35 | 15.00 | 571 | 2 004 | 634 | 2 093 |
| 21.00 — 49 | 15.00 | 571 | 2 360 | 634 | 2 449 |
| 24.00 - 25 | 17.00 | 653 | 1 875 | 725 | 1 974 |
| 24.00 — 29 | 17.00 | 653 | 1 975 | 725 | 2 074 |
| 24.00 35 | 17.00 | 653 | 2 127 | 725 | 2 226 |
| 24.00 — 43 | 17.00 | 653 | 2 331 | 725 | 2 430 |
| 24.00 - 49 | 11200 51 | AND653 RD | PR 2 483 | 725 | 2 582 |
| 27.00 - 33 | 22.00 | 762 | 2.242 | 846 | 2 354 |
| 27.00 - 49 | 19.50 | allua ₇₃₇ us.11 | ell. ² ₆₄₉ | 818 | 2 761 |
| 30.00 - 33 | 22.00 | 823 | 2 389 | 914 | 2 513 |
| 30.00 - 51 | 22.00 | <u>ISO 82350-1:198</u> | ⁸ 2 846 | 914 | 2 970 |
| 33.00 - 51 | https://standards.iteh.a | /catalog/standards/sist/ | e8d67292-8722-4d02 | -8643- 992 | 3 133 |
| 36.00 - 51 | 26.00 | 988 988 | 3 165 | 1 097 | 3 315 |
| 40.00 - 57 | 29.00 | 1 097 | 3 526 | 1 218 | 3 692 |

Table 3 - Tyre dimensions for narrow base tyres

1) Design new tyre dimensions quoted in the tables are used for tyre design purposes only.

2) In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

Max. overall width = design new tyre section width (S.W.) \times (1 + tolerance)

Tolerances: S.W. < 380 mm: + 8 % ≥ 380 mm: + 11 %

Max. overall diameter = (design new tyre overall diameter - rim diameter) × (1 + tolerance) + rim diameter

Tolerances: S.W. < 380 mm: + 6 %

≥ 380 mm: + 8 %

NOTE - See ISO 4250-3 for rim diameter values.

3) Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

| 19 - 1 - 1 | | | | | |
|----------------|---------------|-------------------------------|-----------------------------------|--------------------------|---|
| | Measuring rim | Design new tyre ¹⁾ | | In-service ²⁾ | |
| designation | width Code | Section width | Overall diameter ³⁾ | Maximum overall width | Maximum overall diameter ³⁾ |
| 15.5 — 25 | 12.00 | 394 | 1 277 | 437 | 1 328 |
| 17.5 — 25 | 14.00 | 445 | 1 348 | 494 | 1 405 |
| 20.5 - 25 | 17.00 | 520 | 1 492 | 577 | 1 561 |
| 23.5 - 25 | 19.50 | 597 | 1 617 | 663 | 1 696 |
| 26.5 - 25 | 22.00 | 673 | 1 750 | 747 | 1 839 |
| 26.5 — 29 | 22.00 | 673 | 1 851 | 747 | 1 940 |
| 29.5 - 25 | 25.00 | 750 | 1 873 | 833 | 1 972 |
| 29.5 — 29 | 25.00 | 750 | 1 975 | 833 | 2 074 |
| 29.5 — 35 | 25.00 | 750 | 2 127 | 833 | 2 226 |
| 33.25 - 29 | 27.00 | 845 | 2 090 | 938 | 2 198 |
| 33.25 — 35 | 27.00 | 845 | 2 242 | 938 | 2 350 |
| 33.5 - 33 | 28.00 | 850 | 2 242 | 944 | 2 354 |
| 33.5 — 39 | 28.00 | 850 | 2 395 | 944 | 2 507 |
| 37.25 — 35 | 31.00 | 946 | 2 389 | 1 050 | 2 509 |
| 37.5 - 33 | 32.00 | 952 | 2 389 | 1 057 | 2 513 |
| 37.5 — 39 | 32.00 | 952 | 2 541 | 1 057 | 2 665 |
| 37.5 — 51 | 32.00 | | | 1,057 | 2 970 |
| 40.5/75 - 394) | 32.00 | 1 029 | 2 581 | 1 142 | 2 708 |

Table 4 - Tyre dimensions for wide base tyres

Dimonsiana in millimatros

1) Design new tyre dimensions quoted in the tables are used for tyre design purposes only.

2) In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.

Max. overall width = design new tyre section width (S.W.) \times (16 + tolerance) 988

 Tolerances:
 S.W.
 < 380 mm http://wandards.iteh.ai/catalog/standards/sist/e8d67295-8722-4d02-8e43-</th>
 > 380 mm: + 11 %
 10f3bf51cc26/iso-4250-1-1988

Max. overall diameter = (design new tyre overall diameter - rim diameter) × (1 + tolerance) + rim diameter

Tolerances: S.W. < 380 mm: + 6 % > 380 mm: + 8 %

NOTE - See ISO 4250-3 for rim diameter values.

3) Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

4) Special size designation.

Table 5 – Dimensions for narrow base tyres mounted on 15° rim contours

| T | Measuring rim | Design new tyre ¹⁾ | | In-service ²⁾ | |
|-------------|---------------|-------------------------------|-----------------------------------|--------------------------|---|
| designation | width Code | Section width | Overali diameter ³⁾ | Maximum overall width | Maximum overall diameter ³⁾ |
| 27 - 56.5 | 20.00 | 653 | 2 483 | 725 | 2 582 |
| 30 — 56.5 | 22.00 | 737 | 2 649 | 818 | 2 761 |
| 33 — 59.5 | 23.50 | 808 | 2 846 | 897 | 2 970 |
| 36 — 59.5 | 27.00 | 899 | 2 997 | 998 | 3 133 |
| 39 — 59.5 | 27.00 | 973 | 3 165 | 1 080 | 3 315 |

Dimensions in millimetres

1) Design new tyre dimensions quoted in the tables are used for tyre design purposes only.

In-service dimensions are the maximum dimensions for grown tyres in-service for use by machine manufacturers in designing for tyre clearances.
 Max. overall width = design new tyre section width (S.W.) × (1 + tolerance)

Tolerances: S.W. < 380 mm: + 8 % > 380 mm: + 11 %

Max. overall diameter = (design new tyre overall diameter - rim diameter) × (1 + tolerance) + rim diameter

Tolerances: S.W. < 380 mm: + 6 % > 380 mm: + 8 %

NOTE - See ISO 4250-3 for rim diameter values.

3) Figures are based on tyres with normal tread depth. The machine manufacturer should recognize that tyres with deep tread and corresponding increased overall diameter may be used.

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Table 6 indicates recommended rims for narrow base tyres.

Table 6 — Recommended rims for diagonal and radial narrow base tyres for earth-moving service, mobile cranes, shovels, mining cars, loaders and dozers

Table 7 indicates recommended rims for wide base tyres.

Table 7 - Recommended rims for diagonal and radial

wide base tyres for earth-moving, mining and logging

service, mobile cranes, shovels, mining cars, loaders

and dozers

| Tyre size designation | Recommended rims | | |
|-----------------------|-------------------------------------|--|------------------------------------|
| 12.00 - 20 | 8.5, 8.50V, 8.5V5° | Tyre size designation | Recommended rims |
| 12.00 - 21 | 8.50/1.3 | 15.5 — 25 | 12.00/1.3 12.00/1.3 SDC |
| 12.00 - 24 | 8.5, 8.50V, 8.5V5° | | 14.00/1.5 |
| 12.00 - 25 | 8.50/1.3 | 17.5 — 25 | 14.00/1.3 SDC |
| 13.00 - 24 | 10.00W | | 17.00/2.0 |
| 13.00 - 25 | 10.00/1.5 | 20.5 — 25 | 17.00/1.71) |
| 14.00 - 20 | 10.00W | 23.5 - 25 | 19.50/2.5 |
| 14.00 — 21 | 10.00/1.5 | 26.5 - 25 | 22:00/3.0 |
| 14.00 — 24 | 10.00W | 26.5 — 29 | 22.00/3.0 |
| 14.00 — 25 | 10.00/1.5 | 29.5 - 25 | 25.00/3.5 |
| 16.00 - 20 | 11.25/2.0 | 29.5 — 29 | 25.00/3.5 |
| 16.00 — 21 | 11.25/2.0 | 29.5 — 35 | 25.00/3.5 |
| 16.00 — 24 | 11.25/2.0 | 33.25 - 29 | 27.00/3.5 |
| 16.00 - 25 | 11.25/2.0 | 33.25 35 | 27.00/3.5 |
| 18.00 - 24 | 13.00/2.5 | 33.5 - 33 | 28.00/4.0 |
| 18.00 - 25 | 13.00/2.5 | 33.5 - 39 | 28.00/4.0 |
| 18.00 — 33 | 13.00/2.5 SIAN | 37.25 - 35 | 31.00/4.0 |
| 18.00 — 49 | 13.00/2.75 | ards it 375 +33 | 32.00/4.5 |
| 21.00 - 24 | 15.00/3.0 | 37.5 – 39 | 32.00/4.5 |
| 21.00 - 25 | 15.00/3.0 | 37.5 - 51 | 32.00/4.5 |
| 21.00 — 35 | 15.00/3.0 | 0 425(-1:1988 | 32,00/4,5 |
| 21.00 - 49 | https://51.00/310ls.iteh.al/catalog | standal <u>ds/sist/e8069/295-8722-4d02-8</u> | <u>643-</u> |
| 24.00 - 25 | 17.00/3.5 | 2) Special size designation | (*/- |
| 24.00 — 29 | 17.00/3.5 | 2/ Special size designation. | manufacturers should be consulted |
| 24.00 - 35 | 17.00/3.5 | for confirmation of the suitability | of the tyre/wheel assembly for the |
| 24.00 - 43 | 17.00/3.5 | intended service. | |
| 24.00 - 49 | 17.00/3.5 | | |
| 27.00 - 33 | 22.00/4.0 | Table 8 indicates recommend | led rims for narrow base tyres |
| 27.00 - 49 | 19.50/4.0 | mounted on 15° contours. | |
| 30.00 - 33 | 22.00/4.5 | | |
| 30.00 - 51 | 22.00/4.5 | Iable 8 — Recommended | rims for diagonal and radial |

NOTE - The tyre and rim/wheel manufacturers should be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

24.00/5.0

26.00/5.0

29.00/6.0

33.00 - 51

36.00 - 51

40.00 - 57

narrow base tyres mounted on 15° contours

| Tyre size designation | Recommended rims |
|-----------------------|------------------|
| 27 — 56.5 | 20.0 |
| 30 — 56.5 | 22.0 |
| 33 — 59.5 | 23.5 |
| 36 — 59.5 | 27.0 |
| 39 — 59.5 | 27.0 |

NOTE - The tyre and rim/wheel manufacturers should be consulted for confirmation of the suitability of the tyre/wheel assembly for the intended service.

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