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Wheels and rims for pneumatic tyres — Vocabulary, designation and marking

Roues et jantes pour pneumatiques — Vocabulaire, désignation et marquage

ICS: 01.040.43; 43.040.50

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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 33, *Vehicle dynamics and chassis components*, Working Group 5, *Wheels*.

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Wheels and rims for pneumatic tyres — Vocabulary, designation and marking

1 Scope

This International Standard presents a vocabulary of terms related to, and systems for the designation and marking of, wheels and rims intended for use with pneumatic tyres. The intention is to define fundamental wheel and rim terms rather than provide a comprehensive tabulation of all wheel design features. Also specified are the content, location and minimum size of the wheel and rim marking, with the purpose of establishing, on a worldwide basis, a uniform identification system for wheels and rims.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4000-2, *Passenger car tyres and rims — Part 2: Rims*

ISO 4209-2, *Truck and bus tyres and rims (metric series) — Part 2: Rims*

ISO 4251-3, *Tyres (ply rating marked series) and rims for agricultural tractors and machines — Part 3: Rims*

3 Terms and definitions

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3.1

wheel

rotating load-carrying member between the tyre and the axle, usually consisting of two major parts, the rim and the wheel disc, which may be integral, permanently attached or detachable

[SOURCE: See [Figures 1](#) to [8](#).]

3.1.1

rim

that part of the wheel on which the tyre is mounted and supported

3.1.2

disc

wheel disc

that part of the wheel which is the supporting member between the axle and the rim

3.1.3

single wheel

wheel which supports one tyre on one end of an axle

3.1.4

dual wheel

wheel with sufficient inset and configuration so that two such wheels, when assembled with each other, support two tyres on one end of an axle

[SOURCE: See [Figure 2](#).]

3.1.5

inset wheel

wheel so constructed that the rim centreplane is located inboard of the attachment face of the disc

[SOURCE: See [Figure 1 a](#).]

Note 1 to entry: Inset is the distance from the attachment face of the disc to the rim centreplane.

3.1.6

zeroset wheel

wheel so constructed that the rim centreplane is coincident with the attachment face of the disc

[SOURCE: See [Figure 1 b](#).]

3.1.7

outset wheel

wheel so constructed that the centreplane of the rim is located outboard of the attachment face of the disc

[SOURCE: See [Figure 1 c](#).]

Note 1 to entry: Outset is the distance from the attachment face of the disc to the centreplane of the rim.

Note 2 to entry: Track, the distance between the centreplanes of the tyres on an axle, increases as the outset of the wheels is increased.

3.1.8

dual spacing

distance between the centreplanes of the rims to provide the required clearance between the tyres

[SOURCE: See [Figures 2, 5 and 6](#).]

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3.2 Wheel types

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3.2.1

disc wheel

permanent combination of a rim and wheel disc

[SOURCE: See [Figures 1 and 2](#).]

3.2.2

divided wheel

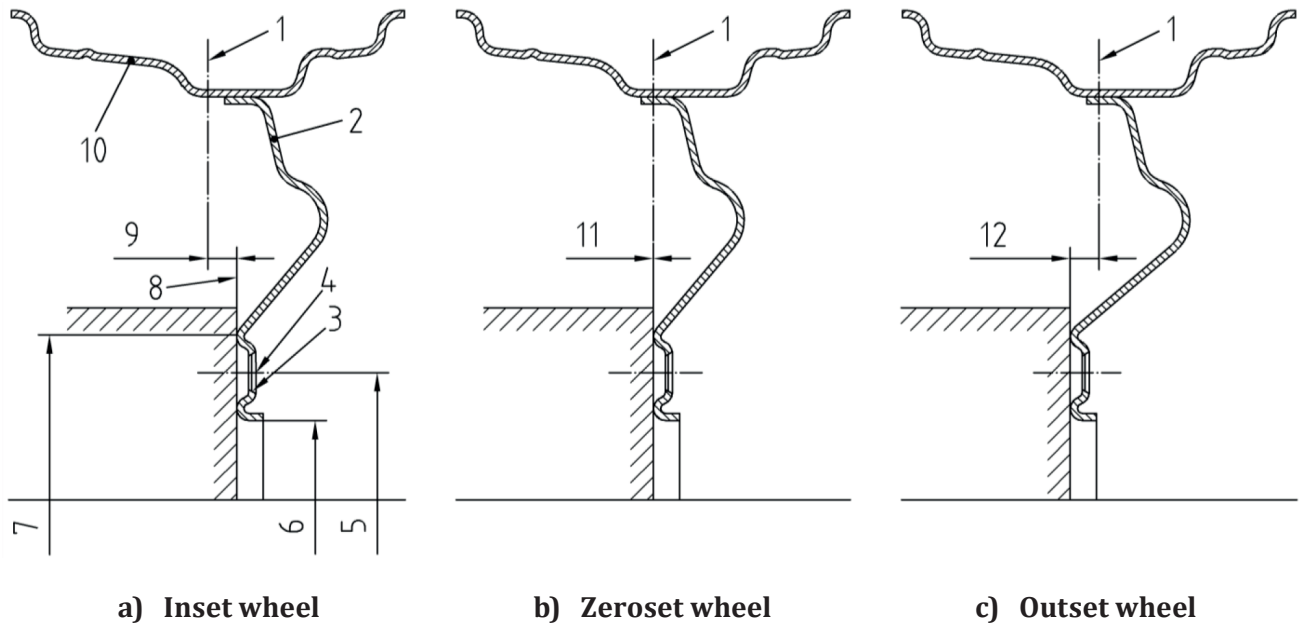
wheel so constructed that its two main parts, the rim portions of which might or might not be the same in width, when securely fastened together with clamping bolts or equivalent mechanical means, combine to form a rim having two fixed flanges

[SOURCE: See [Figure 3](#).]

3.3

wire wheel

wheel so constructed that its rim is joined to the centre member (shell) by a series of wire spokes [SOURCE: See [Figure 4](#).]



Key

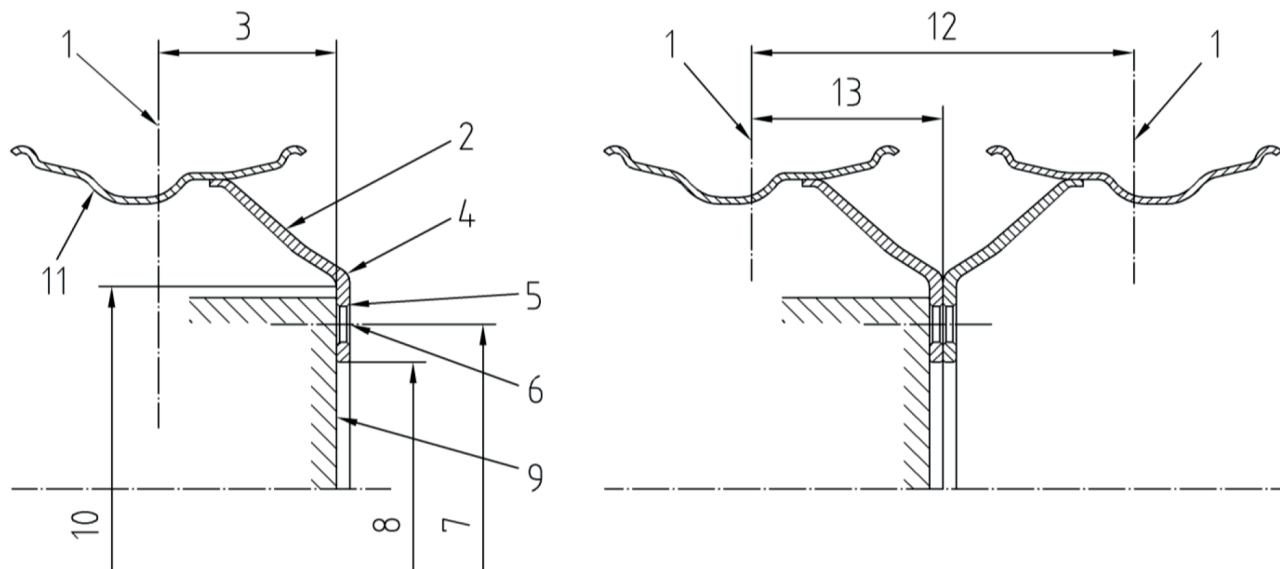
- | | |
|---------------------------------------|-------------------------------------|
| 1 rim centreplane | 7 attachment face diameter of wheel |
| 2 disc | 8 attachment face |
| 3 nut seat | 9 inset |
| 4 bolt hole | 10 rim |
| 5 pitch circle diameter of bolt holes | 11 zero-set |
| 6 centre hole diameter | 12 out-set |

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Figure 1 — Passenger car and light commercial vehicle disc wheels — Nomenclature



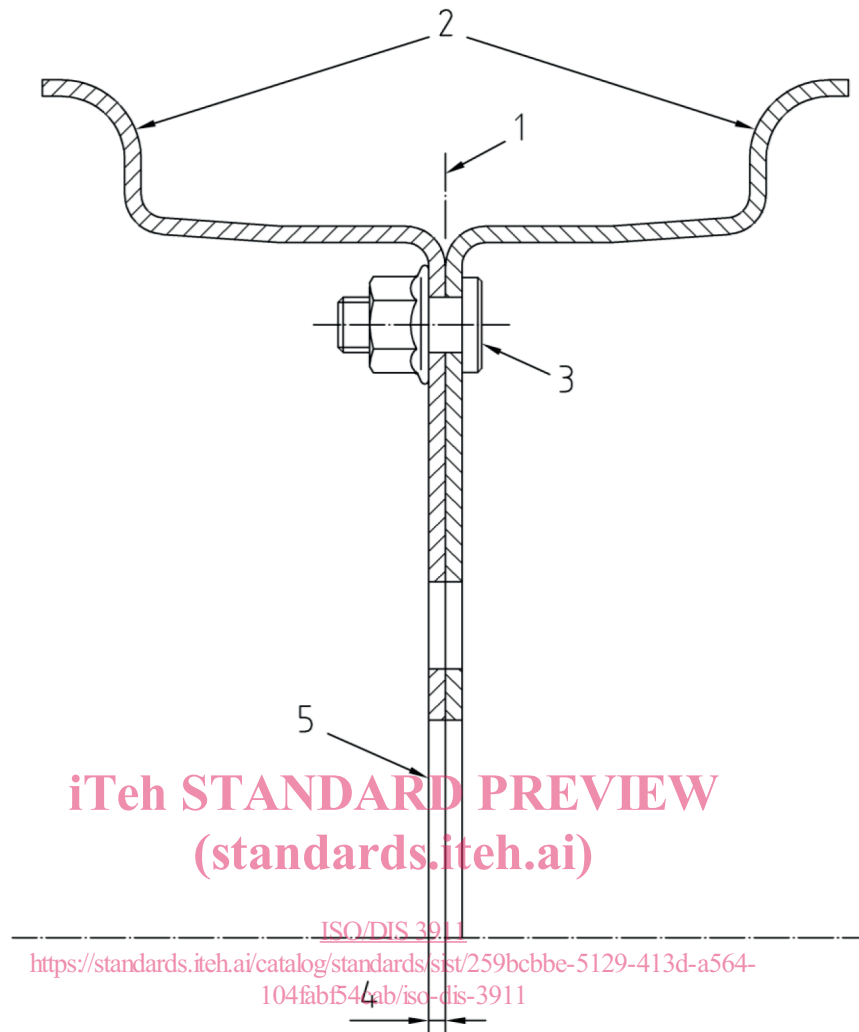
a) Single application

b) Dual application

Key

- | | | | |
|---|-------------------------------------|----|-----------------------------------|
| 1 | rim centreplane | 8 | centre hole diameter |
| 2 | disc | 9 | attachment face |
| 3 | inset | 10 | attachment face diameter of wheel |
| 4 | external face of disc | 11 | rim |
| 5 | nut seat | 12 | dual spacing |
| 6 | bolt hole | 13 | offset |
| 7 | pitch circle diameter of bolt holes | | |

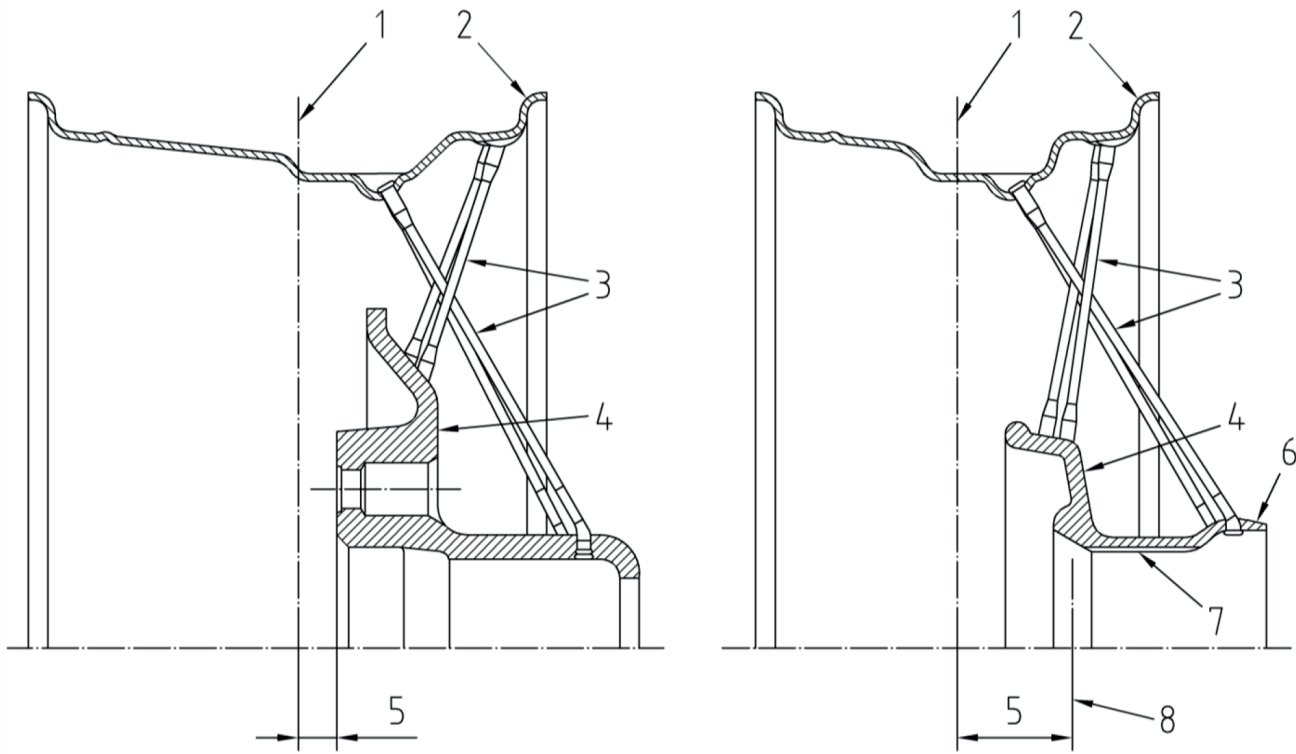
Figure 2 — Commercial vehicle disc wheels — Nomenclature



Key

- 1 rim centreplane
- 2 fixed flanges
- 3 clamping bolts or equivalent mechanical means
- 4 outset
- 5 attachment face

Figure 3 — Divided wheel — Nomenclature



a) Conventional mounting type b) Centre mounting type
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Key

- 1 rim centreplane
- 2 rim
- 3 wire spokes
- 4 centre member (shell)
- 5 inset
- 6 cone seat for retaining nut
- 7 spline
- 8 hub seat reference plane

Figure 4 — Wire wheels — Nomenclature

3.4 Wheels with demountable rims

3.4.1

wheel with 28° mounting bevel

wheel so constructed that one or two demountable rims are clamped to the cast wheel body, which also serves as the hub support for the brake drum or disc brake rotor

[SOURCE: See [Figure 5](#).]

3.4.2

wheel with 18° [15°] mounting bevel

wheel so constructed that one or two demountable rims are clamped to an 18° [15°] mounting bevel on the cast wheel body

[SOURCE: See [Figure 6](#).]

3.5

reversible wheel

wheel so constructed that its disc can be mounted on either face to provide inset (narrow track) or outset (wide track)

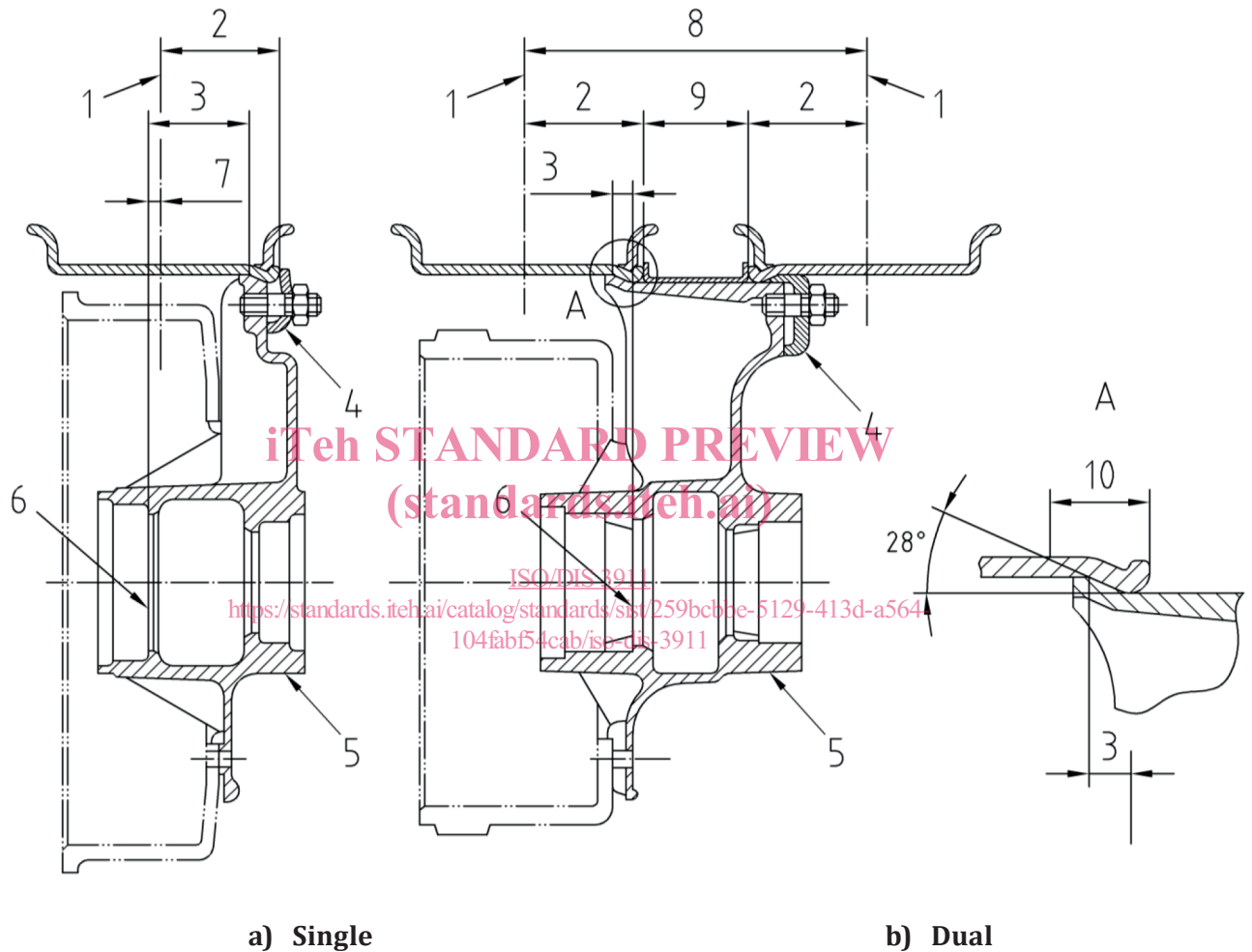
[SOURCE: See [Figure 7](#).]

3.6 adjustable wheel

wheel so constructed that the rim can be repositioned axially relative to the wheel disc

Note 1 to entry: Repositioning adjustments can be made manually or by power of the vehicle [see Figure 8 a) or b), respectively].

Note 2 to entry: The power adjustable is a construction that can adjust the thread easily by loosening the clamp bolt without dismounting the rim from the disc, and by rotating the rim relatively to the wheel disc along the rail [see Figure 8 b)].



Key

- | | |
|----------------------|--|
| 1 rim centreplane | 6 inner bearing cup shoulder (reference plane) |
| 2 rim base offset | 7 outset |
| 3 wheel bevel offset | 8 dual spacing |
| 4 clamp | 9 spacer band width |
| 5 cast wheel body | 10 rim bevel location |

Figure 5 — Wheels with 28° mounting bevel — Nomenclature