

Tyres and wheels —

Part 1: Tyres —

Section 1: Commercial vehicle tyres —

Subsection 2.1a Specification for metric series tyres

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee AUE/4, Tyres and wheels for road vehicles, upon which the following bodies were represented:

- Agricultural Engineers' Association
- Automobile Association
- British Industrial Truck Association
- British Pressure Gauge Manufacturers' Association
- British Rubber Manufacturers' Association
- Confederation of Passenger Transport UK
- Department of Transport
- Freight Transport Association
- Institute of Road Transport Engineers (Inc)
- Motor Cycle Industry's Association of Great Britain Ltd.
- Motor Industry Research Association
- National Tyre Distributors' Association
- Retread Manufacturers' Association
- Road Haulage Association Ltd.
- Society of Motor Manufacturers and Traders Ltd.

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National foreword

This Subsection of this Part of BS AU 50 has been prepared by Technical Committee AUE/4 and supersedes BS AU 50-1.2.1:1991, which is withdrawn. It is identical with ISO 4209-1:1993, *Truck and bus tyres and rims (metric series) — Part 1: Tyres*, published by the International Organization for Standardization (ISO). Other Parts of this standard are:

- *Part 2: Wheels and rims;*
- *Part 3: Valves;*
- *Part 4: Rim profiles and dimensions.*

Cross-reference

The Technical Committee has reviewed the provisions of ISO 4223-1:1989, to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This part of ISO 4209 specifies the designation, dimensions and load ratings of the metric series of tyres primarily intended for trucks and buses.

It applies to bias-belted, diagonal and radial tyres for trucks and buses, mounted on 5° tapered rims and on 15° tapered (drop-centre) rims.

It is also applicable to different concepts and types of tyres and rims; in these cases, however, appropriate rim/section ratios K_1 , coefficients K_2 , K_3 , C_R and construction codes have been added to Table 2 and Table 3. ISO 4209-2 deals with requirements for rims.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 4209. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4209 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

3 Definitions

For the purposes of this part of ISO 4209, the definitions in ISO 4223-1 apply.

4 Tyre designation

The designation of the tyre shall be shown on its sidewall and shall include the following markings, to be shown close to each other:

- size and construction (see 4.1);
- service condition characteristics (see 4.2).

4.1 Size and construction

The size and construction characteristics shall be indicated as follows:

Nominal section width	/	Nominal aspect ratio	Tyre construction code	Nominal rim diameter code
or				
Nominal section width	/	Nominal aspect ratio	Tyre construction code	Nominal rim diameter

(See 4.1.4.)

4.1.1 Nominal section width

The nominal section width shall be expressed in millimetres. For tyres fitted to 5° taper rims and 15° taper rims (code-designated), the nominal tyre section width shall end in 5.

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:

- B for bias-belted construction;
- D for diagonal/bias construction;
- R for radial construction.

NOTE Other codes will be established for new concepts (constructions) of tyres.

4.1.4 Nominal rim diameter

The nominal rim diameter shall be expressed by a code for 5° tapered bead seat rims and 15° tapered bead seat (drop-centre) rims (see Table 1 for code correlations).

However, it shall be expressed in millimetres for new and future concepts where the use of existing tyres on new concept rims or of new concept tyres on existing rims would be incompatible.

4.2 Service condition characteristics

The characteristics shall be indicated as follows:

Load index single / Load index dual 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 under the service conditions specified by the tyre manufacturer. See Table 4.

4.2.2 Speed symbol

The speed symbol indicates the speed at which the tyre can carry the load corresponding to its load index under the service conditions specified by the tyre manufacturer. See Table 5.

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.

4.3.3 In the case of special tread tyres (see Table 2), the symbol “ET” shall be shown on the tyre.

4.4 Example

A tyre having

- a) a size and construction of:
 - nominal section width 275 mm,
 - nominal aspect ratio 70 %,
 - radial construction,
 - nominal rim diameter code 22.5;
- b) service condition characteristics of:
 - single load 2 500 kg,
 - dual load 2 300 kg,
 - reference speed 130 km/h;
- c) other service characteristics:
 - tubeless,
 - special tread;

shall be marked

275/70 R 22.5

140/137 M

TUBELESS ET

5 Tyre dimensions

5.1 Calculation of “design tyre” dimensions

For the choice of coefficients K_1 (rim section ratio) and K_2 , see Table 2.

5.1.1 Theoretical rim width, R_{th}

The theoretical rim width, R_{th} , is equal to the product of the nominal section width, S_N , and the rim/section ratio, K_1 :

$$R_{th} = K_1 S_N$$

5.1.2 Measuring rim width, R_m

The measuring rim width, R_m , is the width of the existing rim nearest to the theoretical rim width, R_{th} . See Table 1 for rim widths of 5° tapered and 15° tapered (drop-centre) rims.