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Bicycle tyres and rims —

Part 1: Tyre designations and dimensions

Pneumatiques et jantes pour bicyclettes —

Partie 1: Désignation et cotes des pneumatiques

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Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 "Wired edge" tyres mounted on straight side or crotchet type rims **2**
4.1 Tyre designation 3
4.2 Tyre dimensions 3
4.3 Tread configurations 10
4.4 Tyre dimension measurement method 11
4.5 Recommended rim contours 11
4.6 Minimum inflation pressure 11

5 "Beaded edge" tyres mounted on hooked bead rims **12**
5.1 Tyre designation 13
5.2 Tyre dimensions 13
5.3 Tyre dimension measurement method 15
5.4 Tyres than can be mounted on both hooked bead and straight side rims 15

Annex A (informative) **Old marking** **16**

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.

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 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 31, *Tyres, rims, and valves*, Subcommittee SC 10, *Cycle, moped, motorcycle tyres, and rims*.

This sixth edition cancels and replaces the fifth edition (ISO 5775-1:1997), which has been technically revised.

ISO 5775 consists of the following parts, under the general title *Bicycle tyres and rims*:

— *Part 1: Tyre designations and dimensions*

— *Part 2: Rims*

Bicycle tyres and rims —

Part 1:
Tyre designations and dimensions

1 Scope

This part of ISO 5775 specifies the designations and dimensions for the following pneumatic bicycle tyres:

— "wired edge" tyres mounted on straight side or crotchet type rims;

— "beaded edge" tyres mounted on hooked bead rims.

Tubular sew-up tyres and non-pneumatic tyres are not covered by this part of ISO 5775.

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.

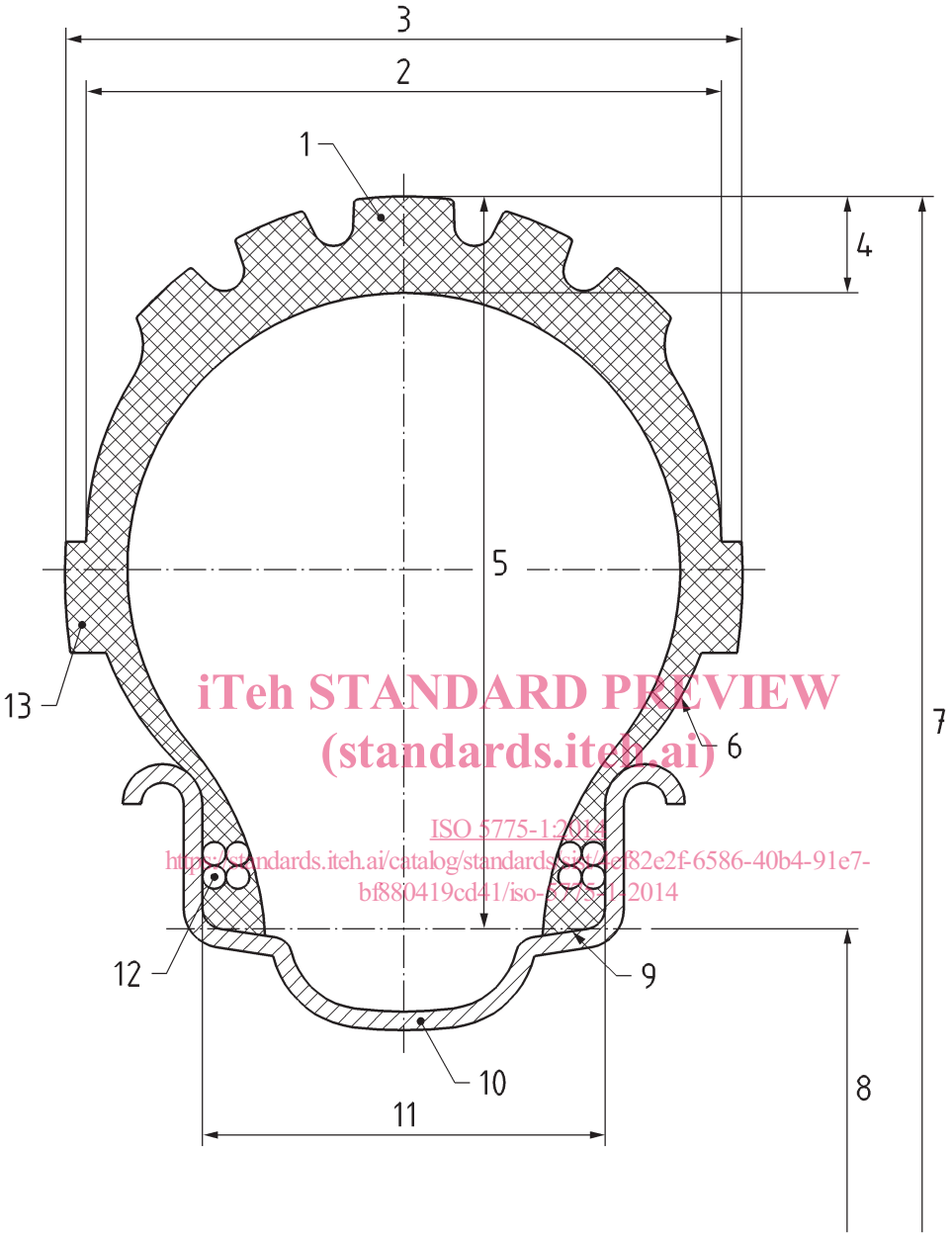
ISO 4223-1, *Definitions of some terms used in the tyre industry — Part 1: Pneumatic tyres*

ISO 5775-2, *Bicycle tyres and rims — Part 2: Rims*

3 Terms and definitions

For the purposes of this part of ISO 5775, the terms and definitions given in ISO 4223-1 apply.

4 “Wired edge” tyres mounted on straight side or crotchet type rims



Key

1 tread
2 section width (S)
3 maximum overall width (W)
4 crown thickness
5 section height (H)
6 side wall
7 maximum overall diameter (D_o)
8 specified rim diameter (D)
9 bead base
10 rim
11 measuring rim width (R_m)
12 steel bead wire
13 side wall engraving or decorative pattern

Figure 1 — Typical section of a cycle tyre showing components and nomenclature

NOTE For tyres that could be mounted on both straight side and hooked bead rims, see 5.4.

4.1 Tyre designation

The tyre designation for straight side and crotchet type rims shall be shown on the sidewall of the tyre and shall include the marking given in 4.1.1 to 4.1.4.

4.1.1 Tyre size designation

The characteristics shall be indicated as follows:

Nominal section width Tyre construction code Nominal rim diameter

4.1.1.1 Nominal section width

The nominal section width of the tyre shall be expressed in millimetres.

4.1.1.2 Tyre construction code

The tyre construction code shall be a separated dash.

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

4.1.1.3 Nominal rim diameter

The nominal rim diameter shall be expressed in millimetres.

4.1.2 Old marking

To help customers in those countries where other systems of marking were used, the old marking(s) may be added in parentheses before or after the tyre size designation.

It is suggested that characters smaller than those used for the designation specified in 4.1.1 be adopted. See Annex A for correspondence between “tyre size designation” and “old markings”. Sizes not included in Annex A shall bear the tyre size designation only.

4.1.3 Other service characteristics

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

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

4.1.3.3 Specific indications, if required, may be added to indicate the following:

a) the recommended or the maximum inflation pressure, in kilopascals;

b) other characteristics.

4.1.4 Example

A tyre having nominal section width 32 mm, nominal rim diameter 597 mm, and recommended inflation pressure of 400 kPa shall be marked as follows:

32 – 597 inflate to 400 kPa

4.2 Tyre dimensions

See Figure 1 for tread and tyre dimensions.

4.2.1 Calculation of "design tyre" dimensions

4.2.1.1 Theoretical rim width, R_{th}

The theoretical rim width, R_{th}, is equal to the product of the nominal section width, S_N, by the rim/section ratio, K_1, as shown in Formula (1):

$$R_{th} = K_1 S_N \quad (1)$$

NOTE For tyres with $S_N \leq 30$, $K_1 = 0{,}65$. For tyres with $S_N > 30$, $K_1 = 0{,}55$.

4.2.1.2 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 ISO 5775-2 for existing rim widths.

4.2.1.3 Design tyre section width, S

The design tyre section width, S, is the nominal section width, S_N, transferred from the theoretical rim width, R_{th}, to the measuring rim width, R_m, as shown in Formula (2):

$$S = S_n + K_2 \left(R_m - R_{th} \right) \quad (2)$$

rounded to the nearest whole number.

NOTE For tyres existing concepts, $K_2 = 0{,}4$.

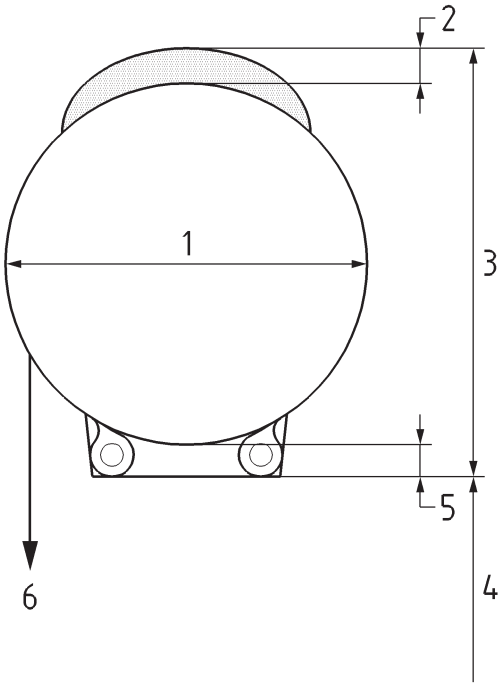
4.2.1.4 Design tyre section height, H

The design tyre section, H, is equal to the following:

— the nominal section width +4 mm when $S_N < 28$ mm;

— the nominal section width +5,5 mm when $S_N \geq 28$ mm;

— the nominal section width +6,5 mm for off-road (type D) ($S_N \geq 35$ mm).



Key

1 section width
2 additional tread thickness
3 section height = section width + shift + additional tread thickness
4 seat diameter
5 shift
6 round shape of the carcass

Figure 2 — Definition of the terms

4.2.1.5 Design tyre overall diameter, D_o

The design tyre overall diameter, D_o, is the sum of the nominal rim diameter, D_r, plus twice the design tyre section height, H, as shown in Formula (3):

$$D_o = D_r + 2H \tag{3}$$

Existing values of the nominal rim diameter, D_r, are given in ISO 5775-2.

4.2.2 Calculation of maximum tyre dimensions in service

The calculation is for use by vehicle manufacturers in designing for tyre clearance.

4.2.2.1 Maximum overall width in service, W_{max}

The maximum overall width in service, W_{max}, is equal to the design tyre section width, S, plus a value, as shown in Table 1.

Table 1 — Maximum overall width in service

Dimensions in millimetres

Tyre type (see 4.3)	Nominal section width S_N	Maximum overall width in service W_{max}
A	≤25	$S + 1$
	$25 < S_N \leq 35$	$S + 2$
	>35	$S + 3$
D	all S_N	$S + 8$

This includes protective ribs, lettering, embellishments, manufacturing tolerances, and growth due to service.

4.2.2.2 Maximum overall diameter in service, $D_{o,max}$

The maximum overall diameter in service, $D_{o,max}$, is equal to the nominal rim diameter, D_r, plus twice the design tyre section height, H, plus a value as follows:

— $D_{o,max} = D_r + 2\,H + 6$ mm for type A tyres;

— $D_{o,max} = D_r + 2\,H + 10$ mm for type D tyres.

This includes manufacturing tolerances and growth due to service.

4.2.2.3 Minimum overall width, S_{min}

The minimum overall width, S_{min}, is equal to the design tyre section width, S, plus a value, as shown in Table 2.

Table 2 — Minimum overall width

Dimensions in millimetres

Nominal section width S_N	Minimum overall width S_{min}
≤28	S - 2
>28	S - 3

4.2.3 Values

Table 3 shows the dimensions for measuring rim width, design section width, and design section height according to 4.2.1 for nominal section widths to be used.

Table 3 — "Wired edge" tyres mounted on crotchet type rims — Design tyre dimensions

Dimensions in millimetres

Nominal section width S_N	Measuring rim width [a] R_m	Design tyre	
		Section width S	Section height H
16	13C	16	20
18	13C	18	22
20	13C	20	24

[a] For dimensions of measuring rims, see ISO 5775-2.

Table 3 *(continued)*

Nominal section width S_N	Measuring rim width [a] R_m	Design tyre	
		Section width S	Section height H
23	15C	23	27
25	15C	25	29
28	17C	28	33,5
30	17C	30	35,5
32	17C	32	37,5
35	19C	35	40,5
37	19C	37	42,5
40	19C	40	45,5
42	19C	42	47,5
44	19C	44	49,5
47	19C	47	52,5
50	19C	50	55,5
52	19C	52	57,5
54	19C	54	59,5
57	19C	57	62,5
60	21C	60	65,5
62	21C	62	67,5

[a] For dimensions of measuring rims, see ISO 5775-2.

Table 4 — "Wired edge" tyres mounted on straight side and crotchet type rims — Recommended rims

Dimensions in millimetres

Nominal section width S_N	Recommended rims [a]	
	Straight side rims [b]	Crotchet type rims [c]
16	—	13C
18	—	13C
20	—	13C
23	16	13C; 15C
25	16; 18	13C; 15C; 17C
28	16; 18; 20	15C; 17C; 19C
32	16; 18; 20	15C; 17C; 19C
35	18; 20; 22	17C; 19C; 21C
37		17C; 19C; 21C; 23C

[a] Crotchet type rims shall be used when tyre inflation pressures over 500 kPa are recommended.

When inflation pressure over 500 kPa is recommended, an appropriate rim base protective flap must be used when spoke ends are apparent.

[b] Straight side rims are to be used only for non-foldable tyres.

[c] Crotchet type rims can be used with rigid and foldable tyres.

[d] In case of tubeless application with a tubeless tyre, a special airtight tape shall be used with crotchet type rim, or a special tubeless rim shall be fitted to the bicycle.