INTERNATIONAL STANDARD ISO 5775/I

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Bicycle tyres and rims — Part I : Tyre designations and dimensions

Pneumatiques et jantes pour cycles — Partie I : Désignation et dimensions des pneumatiques

First edition — 1978-03-15

UDC 629.11.012.5/.6 : 629.118.3

Ref. No. ISO 5775/I-1978 (E)

Descriptors : road vehicles, bicycles, pneumatic tyres, tyres, rims, designations, dimensions.

Price based on 8 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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.

International Standard ISO 5771/I was developed by Technical Committee ISO/TC 31, *Tyres, rims and valves*, and was circulated to the member bodies in March 1977.

It has been approved by the member bodies of the following countries :

Australia	India	South Africa, Rep. of
Austria	Israel	Spain
Belgium	Italy	Sweden
Brazil	Japan	Switzerland
Canada	Korea, Rep. of	Thailand
Chile	Mexico	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	Poland	U.S.A.
Germany	Romania	U.S.S.R.

No member body expressed disapproval of the document.

Printed in Switzerland

Bicycle tyres and rims —
Part I : Tyre designations and dimensions

1 SCOPE

This International Standard, consisting of three parts, specifies the main requirements for bicycle tyres and rims, as follows :

Part I : Tyre designations and dimensions :

Section one : Tyres mounted on straight side rims.
Section two : Tyres mounted on hooked bead rims.

Part II : Load ratings.[1)]

Part III : Rims (profile and dimensions)[1)]

Section one : Straight side rims.
Section two : Hook bead rims.
Section three : Methods for checking rim dimensions.

2 FIELD OF APPLICATION

This International Standard applies to pneumatic tyres for bicycles mounted on straight side rims and to pneumatic tyres for bicycles mounted on hooked bead rims.

Tubular sew-up tyres and non-pneumatic tyres will be the subjects of separate standards.

3 REFERENCE

ISO 4223, *Definitions of some terms used in the tyre industry.*

1) In preparation.

SECTION ONE : TYRES MOUNTED ON STRAIGHT SIDE RIMS

4 DEFINITIONS

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

5 TYRE DESIGNATION

The tyre designation shall be shown on the sidewall of the tyre and shall include the following markings :

5.1 Tyre size designation

The characteristics shall be indicated as follows :

Nominal section width	Tyre construction code	Nominal rim diameter

5.1.1 *Nominal section width*

The nominal section width shall be expressed in millimetres.

5.1.2 *Tyre construction code*

The tyre construction code shall be "–".

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

5.1.3 *Nominal rim diameter*

The nominal rim diameter shall be expressed in millimetres.

5.2 Old marking

To help customers in those countries where other systems of marking were used, the old marking or markings can 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 5.1 be adopted. See table 2 for correspondence between "tyre size designation" and "old markings". Sizes not included in table 2 shall bear "tyre size designation" only.

5.3 Preferred direction of rotation

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

5.4 Example

A tyre having nominal section width 32 and nominal rim diameter 597 will be marked :

32 – 597

6 TYRE DIMENSIONS

6.1 Calculation of "design new tyre" dimensions

6.1.1 *Theoretical rim width* (R_{Th})

The theoretical rim width equals the product of the nominal section width (S_N) by the rim/section ratio (K_1) :

$$R_{Th} = K_1 S_N$$

NOTE – For tyres with $S_N = 30$ or lower, $K_1 = 0{,}60$. For tyres with S_N larger than 30, $K_1 = 0{,}55$.

6.1.2 *Measuring rim width* (R_M)

The measuring rim width is the width of the existing rim nearest to the theoretical rim width (R_{Th}). See part III for rim width (R_M) of existing rims.

6.1.3 *Design new tyre section width* (S)

The design new tyre section width is the nominal section width (S_N) transferred from the theoretical rim (R_{Th}) to the measuring rim (R_M) :

$$S = S_N + K_2 (R_M - R_{Th})$$

rounded to whole numbers.

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

6.1.4 *Design new tyre section height* (H)

The design new tyre section height equals the nominal section width (S_N).

6.1.5 *Design new tyre overall diameter* (D_o)

The design new tyre overall diameter is the sum of the nominal rim diameter (D_r) plus twice the design new tyre section height (H) :

$$D_o = D_r + 2H$$

See table 1 in part III for the existing values of D_r.

6.2 Calculation of maximum tyre dimensions in service

(for use by vehicle manufacturers in designing for tyre clearances)

6.2.1 *Maximum overall width in service* (W_{max})

The maximum overall width in service equals the design new tyre section width (S) plus 3 mm :

$$W_{max} = S + 3 \text{ mm}$$

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

6.2.2 *Maximum overall diameter in service* ($D_{o\ max}$)

The maximum overall diameter in service equals the nominal rim diameter (D_r) plus twice the design new tyre section height (H) plus 6 mm :

$$D_{o\ max} = D_r + 2H + 6 \text{ mm}$$

It includes manufacturing tolerances and growth due to service.

6.3 Values

Table 1 shows the dimensions for measuring rim width, design section width and design section height according to 6.1 for nominal section widths to be retained.

7 METHOD OF MEASUREMENT OF TYRE DIMENSIONS

Before measuring, tyres shall be mounted on the measuring rim, inflated to the recommended inflation 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.

TABLE 1 — **Tyres mounted on straight side rims — New tyre dimensions**

Values in millimetres

Nominal section width S_N	Theoretical rim width R_{Th}	Measuring rim width[1] R_M	New tyre	
			Design section width S	Design section height H
25	15,00	17	26	25
28	16,80	17	28	28
32	17,60	17	32	32
37	20,35	20	37	37
40	22,00	24 (20)	41 (39)	40
44	24,20	24	44	44
47	25,85	27	47	47
50	27,50	27	50	50
54	29,70	30,5	54	54
57	31,35	30,5	57	57
62	34,10	34 (30,5)	62 (61)	62

1) For dimensions of measuring rims and permitted rims, see part III.

TABLE 2 – **Tyres mounted on straight side rims – Correspondence between "tyre size designation" and "old markings"**

Tyre size designation	Old markings	
28 – 622	28 × 1 5/8 × 1 1/8	700 × 28 C
	28 × 1 5/8 × 1 1/4 × 1 1/8	700 C Carrera
28 – 630	27 × 1 1/4 fifty	
28 – 635		700 B
28 – 642	28 × 1 3/8 × 1 1/8	700 × 28 A
32 – 239	12 × 1 3/8 × 1 1/4	300 × 32
32 – 248	12 × 1 1/4	300 × 32 A
32 – 288	14 × 1 3/8 × 1 1/4	350 × 32
32 – 298	14 × 1 1/4	350 × 32 A
32 – 340	16 × 1 3/8 × 1 1/4	400 A
		400 × 32
32 – 349	16 × 1 1/4 NL	400 × 32 A
32 – 357	17 × 1 1/4	
32 – 369	16 × 1 1/4	
32 – 390	18 × 1 3/8 × 1 1/4	450 A
		450 × 32
32 – 400	18 × 1 1/4	450 × 32 A
32 – 438		500 × 32 ANL
32 – 440	20 × 1 3/8 × 1 1/4	500 A
		500 × 32
32 – 451	20 × 1 1/4	500 × 32 A
32 – 489		550 × 32 ANL
32 – 490	22 × 1 3/8 × 1 1/4	550 A
		550 × 32
32 – 501	22 × 1 1/4	550 × 32 A
32 – 508	22 × 1 1/4 × 1	
32 – 540	24 × 1 3/8 × 1 1/4	
32 – 541	24 × 1 3/8 × 1 1/4 NL	600 A
		600 × 32 A
32 – 547	24 × 1 1/4	

Tyre size designation	Old markings	
32 – 590	26 × 1 3/8 × 1 1/4	650 × 32 A
32 – 597	26 × 1 1/4	
32 – 622	28 × 1 5/8 × 1 1/4	700 × 32 C
	28 × 1 1/4 × 1 3/4	700 C Course
32 – 630	27 × 1 1/4	
32 – 635	28 × 1 1/2 × 1 1/8	700 × 28 B
		700 B Course
37 – 288		350 A Comfort
		350 A 1/2 Balloon
37 – 298	14 × 1 3/8	
37 – 337	16 × 1 3/8 ANL	
37 – 340	16 × 1 3/8 NL	400 A Comfort
		400 A 1/2 Balloon
		400 × 42 A
37 – 349	16 × 1 3/8	
37 – 387	18 × 1 3/8 NL	
37 – 390		450 A Comfort
		450 A 1/2 Balloon
37 – 400	18 × 1 3/8	
37 – 438	20 × 1 3/8 NL	
37 – 440		500 A Comfort
		500 A 1/2 Balloon
37 – 451	20 × 1 3/8	
37 – 489	22 × 1 3/8 NL	
37 – 490		550 A Comfort
		550 A 1/2 Balloon
37 – 498	22 × 1 3/8 × 1 1/4 NL	
37 – 501	22 × 1 3/8	

TABLE 2 (*continued*)

Tyre size designation	Old markings	
37 – 540	24 × $1\frac{3}{8}$	
37 – 541		600 A Comfort 600 A $\frac{1}{2}$ Balloon 600 × 35 A
37 – 584	26 × $1\frac{1}{2}$ × $1\frac{3}{8}$ 26 × $1\frac{3}{8}$ × $1\frac{1}{2}$	
37 – 590	26 × $1\frac{3}{8}$	650 A 650 × 35 A
37 – 622	28 × $1\frac{5}{8}$ × $1\frac{3}{8}$ 28 × $1\frac{3}{8}$ × $1\frac{5}{8}$	700 × 35 C
37 – 642	28 × $1\frac{3}{8}$	700 × 35 A
40 – 279	14 × $1\frac{1}{2}$	350 × 38 B
40 – 288	14 × $1\frac{1}{2}$ NL	350 × 38
40 – 330	16 × $1\frac{1}{2}$	400 × 38 B
40 – 432	20 × $1\frac{1}{2}$	
40 – 440	20 × $1\frac{1}{2}$ NL	500 × 38
40 – 534	24 × $1\frac{1}{2}$	
40 – 540	24 × $1\frac{3}{8}$ × $1\frac{1}{2}$ 24 × $1\frac{1}{2}$ × $1\frac{3}{8}$	
40 – 571	26 × $1\frac{1}{2}$ C.S. 26 × $1\frac{5}{8}$ × $1\frac{1}{2}$ NL	
40 – 584	26 × $1\frac{1}{2}$	650 × 35 B 650 × 38 B
40 – 590	26 × $1\frac{3}{8}$ × $1\frac{1}{2}$ NL	
40 – 622	28 × $1\frac{5}{8}$ × $1\frac{1}{2}$ NL	700 × 38 C
40 – 635	28 × $1\frac{1}{2}$ × $1\frac{3}{8}$ 28 × $1\frac{1}{2}$	700 B Standard 700 × 35 B 700 X 38 B
44 – 194	10 × $1\frac{5}{8}$	

Tyre size designation	Old markings	
44 – 288	14 × $1\frac{3}{8}$ × $1\frac{5}{8}$	350 A 350 × 42 A
44 – 340	16 × $1\frac{5}{8}$	
44 – 428	20 × $1\frac{5}{8}$ × $1\frac{1}{2}$	
44 – 484	22 × $1\frac{5}{8}$ × $1\frac{1}{2}$	
44 – 531	24 × $1\frac{5}{8}$ × $1\frac{1}{2}$	
44 – 584	26 × $1\frac{1}{2}$ × $1\frac{5}{8}$ 26 × $1\frac{5}{8}$ × $1\frac{1}{2}$	650 B Semi-Comf. 650 B $\frac{1}{2}$ Balloon 650 × 42 B
44 – 622	28 × $1\frac{5}{8}$	700 × 42 C
44 – 635	28 × $1\frac{5}{8}$ × $1\frac{1}{2}$	
47 – 203	$12\frac{1}{2}$ × 1.75 × $2\frac{1}{4}$	
47 – 222	11 × $1\frac{3}{4}$	
47 – 305	16 × 1.75 × 2	
47 – 317	16 × $1\frac{3}{4}$	
47 – 355	18 × 1.75 × 2	
47 – 406	20 × 1.75 × 2 20 × 1.75	
47 – 419	20 × $1\frac{3}{4}$	
47 – 507	24 × 1.75 × 2 24 × 1.75	
47 – 520	24 × $1\frac{3}{4}$	
47 – 559	26 × 1.75 × 2 26 × 1.75	
47 – 571	26 × $1\frac{3}{4}$ 26 × $1\frac{5}{8}$	650 × 45 C 650 C S.C.
47 – 584	26 × 1.75 × $1\frac{1}{2}$ 26 × $1\frac{1}{2}$ × $1\frac{3}{4}$	650 × 45 B
47 – 622	28 × $1\frac{3}{4}$ 28 × 1.75 28 × $1\frac{5}{8}$ × $1\frac{3}{4}$	700 × 45 C

TABLE 2 (*concluded*)

Tyre size designation	Old markings
54 – 305	16 × 2
54 – 400	20 × 2 × $1\frac{3}{4}$ 20 × 2 F 4 J
54 – 406	20 × 2.00
54 – 428	20 × 2
54 – 559	26 × 2
54 – 571	26 × $1\frac{3}{4}$ × 2 650 × 50 C

Tyre size designation	Old markings
54 – 584	26 × 2 × $2\frac{1}{2}$
57 – 239	300 × 55 A
57 – 406	20 × 2.125 20 × 2.125 × 2
62 – 203	$12\frac{1}{2}$ × $2\frac{1}{4}$ 320 × 57
62 – 305	16 × 2.125
67 – 381	20 × $2\frac{1}{2}$

SECTION TWO : TYRES MOUNTED ON HOOKED BEAD RIMS

8 DEFINITIONS

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

9 TYRE DESIGNATION

The tyre designation shall be shown on the sidewall of the tyre and shall include the following marking :

9.1 Tyre size designation

The characteristics shall be indicated as follows :

Overall diameter code «X» **Nominal section code**

9.1.1 *Overall diameter code*

The overall diameter code shall be in whole even numbers.

9.1.2 *Symbol "X"*

The symbol "X" shall be included between the code corresponding to the overall diameter and the code corresponding to the nominal section.

9.1.3 *Nominal section code*

The nominal section code shall be expressed in hundredths or thousandths, ending in 5 (for example 1.375).

9.2 Preferred direction of rotation

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

9.3 Example

A tyre having overall diameter code 20 and nominal section code 1.375 will be marked :

20 × 1.375

10 TYRE DIMENSIONS

10.1 Design new tyre dimensions

10.1.1 *Measuring rim width and design dimensions*

Table 3 gives the measuring rim width (R_M), the design new tyre section width (S) and the design new tyre section height (H) for a given nominal section code.

TABLE 3 – **Tyres mounted on hooked bead rims – Measuring rim width and design dimensions**

Values in millimetres

Nominal section code	Measuring rim width[1] R_M	Design new tyre	
		Section width S	Section height[2] H
1.25	19,8	32	28
1.375	19,8	35	31
1.75	24,6	44	39
2.125	27,0	54	48

1) To be revised.

2) The design section height equals 0,88 × design section width rounded to whole numbers.

10.1.2 *Design new tyre overall diameter (D_o)*

The design new tyre overall diameter equals the sum of the nominal outer rim diameter (ODR) plus twice the design section height (H) :

$$D_o = ODR + 2H$$

See part III, table 1, for existing values of ODR.

10.2 Calculation of maximum tyre dimensions in service (for use by vehicle manufacturers in designing for tyre clearances)

10.2.1 *Maximum overall width in service (W_{max})*

The maximum overall width in service equals the design new tyre section width (S) plus 3 mm :

$$W_{max} = S + 3 \text{ mm}$$

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

10.2.2 *Maximum overall diameter in service ($D_{o\,max}$)*

The maximum overall diameter in service equals the nominal outer rim diameter (ODR) plus twice the design new tyre section height (H) plus 6 mm :

$$D_{o\,max} = ODR + 2H + 6 \text{ mm}$$

It includes manufacturing tolerances and growth due to service.

10.3 Determination of the nominal overall diameter code

The nominal overall diameter code expresses the value of the design new tyre overall diameter (D_o), as in 10.1.2, multiplied by 0,04 and rounded to the nearest even number. (For example, if $D_o = 450$, nominal overall diameter code = 18.)