INTERNATIONAL STANDARD

ISO 5775-2

Second edition
1996-12-01

Bicycle tyres and rims —

Part 2:
Rims

Pneumatiques et jantes pour cycles —
Partie 2: Jantes

Reference number
ISO 5775-2:1996(E)

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5775-2 was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 10, *Cycle, moped, motorcycle tyres and rims*.

This second edition cancels and replaces the first edition (ISO 5775-2:1989), 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*

Annex A of this part of ISO 5775 is for information only.

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Bicycle tyres and rims —

Part 2:
Rims

1 Scope

This part of ISO 5775 specifies rim dimensions for bicycle tyres: it gives only those rim contour dimensions necessary for tyre mounting and to fit the tyre on the rim.

ISO 5775-1 covers designations and dimensions for tyres.

ISO 5775 covers straight side (SS) rims, hooked bead (HB) rims and crotchet type (C) rims.

Annex A presents methods for checking dimensions of straight side rims and hooked bead rims.

2 Symbols

The following symbols are used in this part of ISO 5775.

A	Specified rim width
A_1	Rim width at the tyre bead seat
D	Specified rim diameter
D_1	Measuring rim diameter
D_2	Outer diameter
G	Flange height
H_1	Unobstructed minimum depth above rim base with rim tape fitted to permit tyre fitment
L_1	Well width above rim tape
P	Bead seat width
R_2	Flange radius
R_3	Bead seat radius
R_4	Well top radius
W	Measuring tape width
β	Bead seat angle

3 General requirements

3.1 *Rim contour*

The rim shall have a smooth contour, free of sharp edges, on the side of the tyre.

3.2 Rim valve hole

The rim valve hole shall be centred on the bottom of the rim well. On the tyre side, the edges shall be rounded or chamfered. On the hub side, the edges shall be free from burrs which could damage the valve.

3.3 Specific requirements

Designation and dimensions for straight side rims, hooked bead rims and crotchet type rims are given in clauses 4, 5 and 6, respectively.

4 Straight side rims

4.1 Rim contours

Dimensions and tolerances of straight side (SS) rims shall be as given in figure 1 and table 1.

4.2 Rim diameters

The nominal rim diameter code, specified rim diameters and measuring rim diameters for straight side (SS) rims shall be as given in figure 1 and table 2.

4.3 Designation and marking

A straight side (SS) rim shall be designated by its nominal rim diameter and its nominal width, optionally preceded by "SS" for straight side.

EXAMPLE

SS 400 × 20

Dimensions in millimetres

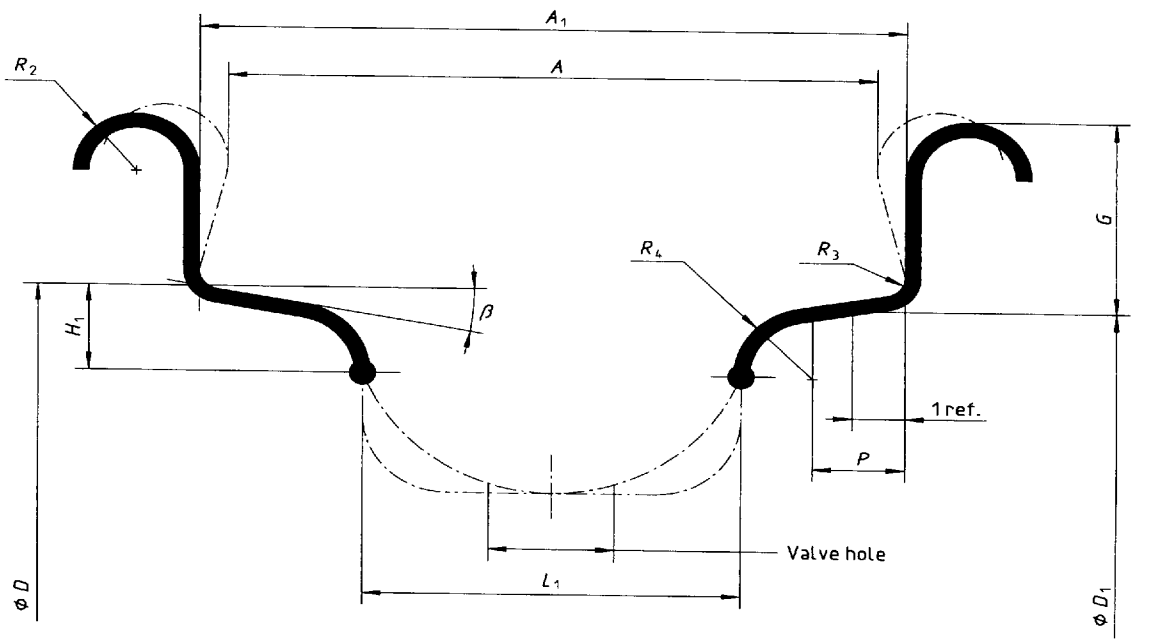


Figure 1 — Straight side rims

Table 1 — Dimensions of straight side rims

Dimensions in millimetres

Nominal rim width	A ± 1	A_1 $^{0}_{-1}$	G ± 0,5	P min.	H_1 [1), 2)] min.	L_1 [2)] min.	R_2 min.	R_3 max.	R_4 min.	β [3)] ± 5°
18[4)]	18	18	6,5	1,8	1,8	10	1,5	1	1,5	10°
20	20	—	6,5	2	2	11	1,8	1	1,5	10°
22	22	—	6,5	2,2	3	11	1,8	1	2	10°
24	24	—	7	3	3	11	2	1	2,5	10°
27	27	—	7,5	3,5	3,5	14	2,5	1	2,5	10°
30,5	30,5	—	8	3,5	3,5	14	2,5	1	2,5	10°

1) For 400 mm diameter and smaller, increase depth H_1 by 1 mm.

2) The dimension H_1 in conjunction with dimension L_1 defines the unobstructed space above the rim base and the nipple heads, with the rim tape fitted, to permit satisfactory tyre fitment. The actual well depth of the rim shall be defined at the discretion of rim manufacturers to achieve this objective.

3) For rolled rims with nominal rim diameter of 400 mm and smaller, $\beta = 15° \pm 10°$.

4) Previously known as rim with code 17.

Table 2 — Specified and measuring rim diameters for straight side rims

Dimensions in millimetres

Nominal rim diameter code	Specified rim diameter D	Measuring rim diameter[1] D_1
194	194,2	193,85
203	203,2	202,85
222	222,2	221,85
239	239,4	239,05
248	247,6	247,25
251	250,8	250,45
279	279,2	278,85
288	287,8	287,45
298	298,4	298,05
305	304,7	304,35
317	317	316,65
330	329,8	329,45
337	336,6	336,25
340	339,6	339,25
349	349,2	348,85
355	355	354,65
357	357,1	356,75
369	368,6	368,25
381	380,9	380,55
387	387,1	386,75
390	389,6	389,25
400	400,1	399,75
406	405,6	405,25
419	418,6	418,25
428	428,1	427,75
432	431,6	431,25
438	437,7	437,35
440	439,9	439,55
451	450,8	450,45
484	484	483,65
489	488,6	488,25
490	490,2	489,85
498	497,5	497,15
501	501,3	500,95
507	507,3	506,95
520	520,2	519,85
531	530,6	530,25
534	533,5	533,15
540	539,6	539,25
541	540,8	540,45
547	546,5	546,15
559	558,8	558,45
565	564,9	564,55
571	571	570,65
584	583,9	583,55
590	590,2	589,85
597	597,2	596,85
609	609,2	608,85
622	622,3	621,95
630	629,7	629,35
635	634,7	634,35
642	641,7	641,35

1) The tolerance on the measured bead seat circumference (π × measuring rim diameter) is ± 1,5 mm.

5 Hooked bead rims

5.1 Rim contours

Dimensions and tolerances of hooked bead (HB) rims shall be as given in figure 2 and table 3.

5.2 Rim diameters and circumferences

The nominal rim diameter code, specified rim diameters and measuring circumferences for hooked bead (HB) rims shall be as given in figure 2 and table 4.

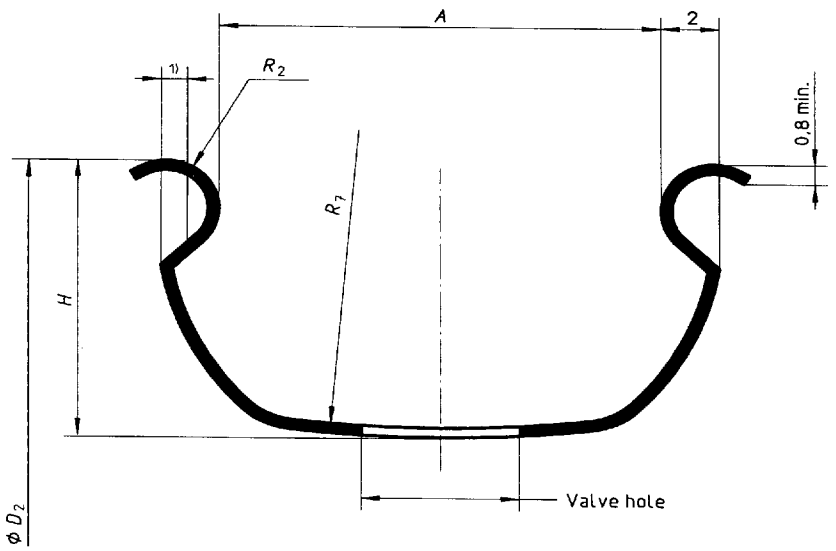
5.3 Designation and marking

A hooked bead (HB) rim shall be designated by its nominal rim diameter and its nominal width, preceded by "HB" for hooked bead.

EXAMPLE

HB 422 × 25

Dimensions in millimetres



1) Optional opening not to exceed 1 mm.

Figure 2 — Hooked bead rims

Table 3 — Dimensions of hooked bead rims

Dimensions in millimetres

Nominal rim width	A ± 1	H min.	R_2 ± 0,5	R_7 min.
20	20	13	2	30
25	25	14	2	50
27	27	15	2	70

Table 4 — Specified rim diameters and circumferences for hooked bead rims

Dimensions in millimetres

Nominal rim diameter code[1]	Specified rim diameter D	Specified rim circumference, πD ± 2,5
HB 270	269,9	847,9
HB 321	320,7	1 007,5
HB 372	371,5	1 167,1
HB 422	422,3	1 326,7
HB 459	458,8	1 441,4
HB 473	473,1	1 486,3
HB 510	509,6	1 601
HB 524	523,9	1 645,9
HB 560	560,4	1 760,6
HB 575	574,7	1 805,5
HB 611	611,2	1 920,1

1) HB denotes hooked bead rim; the number following HB is the rim code.

6 Crotchet type rims

6.1 Rim contours

Dimensions and tolerances of crotchet type (C) rims shall be as given in figure 3 and table 5.

6.2 Rim diameters

The nominal rim diameter code, specified rim diameters and measuring rim diameters for crotchet type (C) rims shall be as given in figure 3 and table 2.

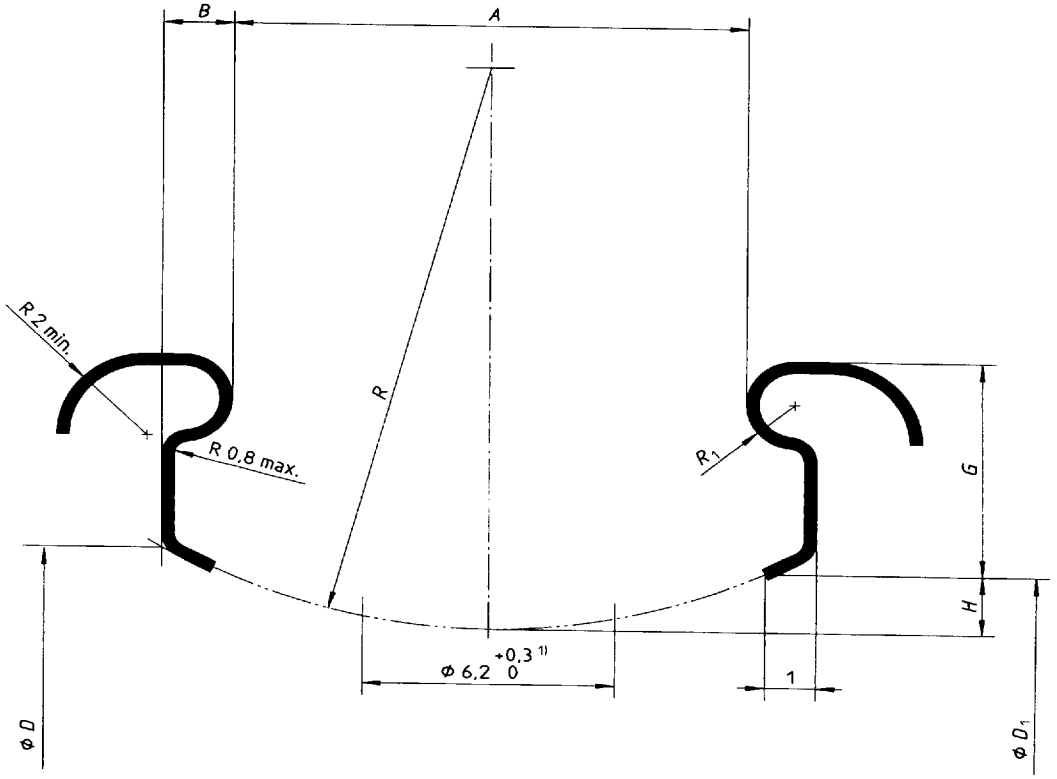
6.3 Designation and marking

A crotchet type (C) rim shall be designated by its nominal rim diameter and its nominal width, followed by "C" for crotchet type.

EXAMPLE

622 × 13C

Dimensions in millimetres



1) Valve hole 8,3 $^{+0,3}_{0}$ permitted for rim widths ≥ 19C.

Figure 3 — Crotchet type rims

Table 5 — Dimensions of crotchet type rims

Dimensions in millimetres

Nominal rim width code	A ± 0,5	B ± 0,5	G ± 0,5	H[1] min.	R_1[1]
13C	13	1,5	5	2	0,9 ± 0,1
15C	15				
16C	16		5,5		1,1 $^{+0,2}_{-0,1}$
17C	17			2,2	
19C	19		6,5	2,5	
21C	21				
23C	23		7,5	4,5	
25C	25				

1) Dimensions H and R define the minimum unobstructed space above the rim base and nipple heads to permit satisfactory tyre fitment on a crotchet type rim.

Annex A
(informative)

Methods for measuring and gauging bicycle rim dimensions

A.1 Purpose

This annex gives methods for measuring and gauging dimensions of straight side rims, hooked bead rims and crotchet type rims.

A.2 General

All measurements shall be made on rims ready for tyre mounting and placed on flat surfaces. For accurate measurements, gauges and tapes shall always be set perpendicular to the rim flanges on both bead seats.

A.3 Main rim dimensions to be measured and gauged

The main rim dimensions which shall be measured and gauged are indicated in figures A.1, A.2 and A.3.

Dimensions in millimetres

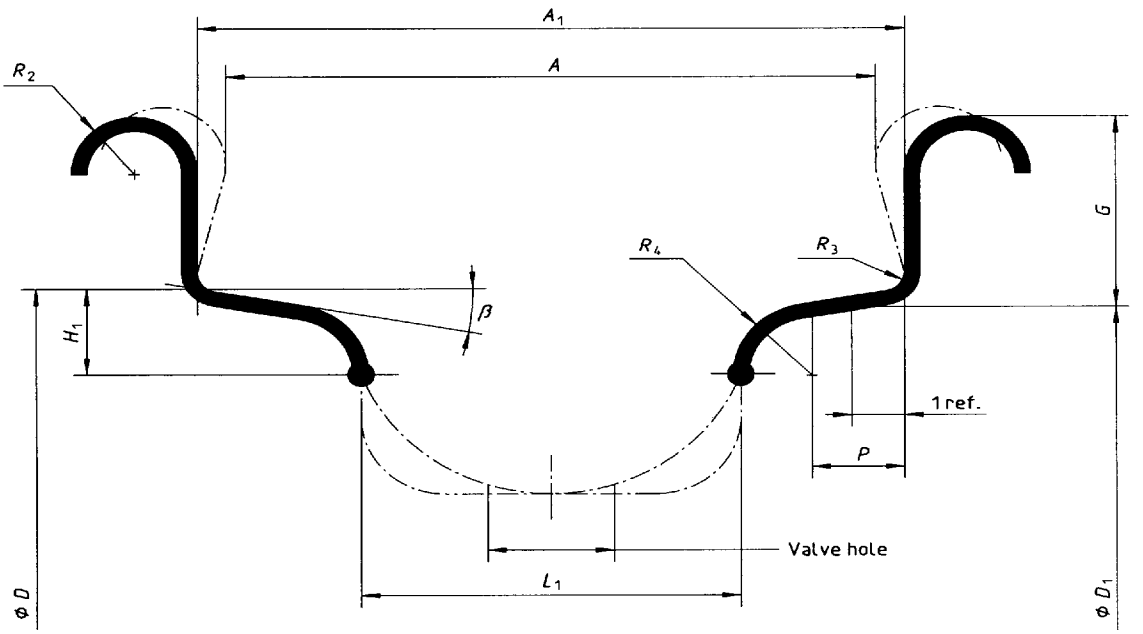


Figure A.1 — Straight side rims

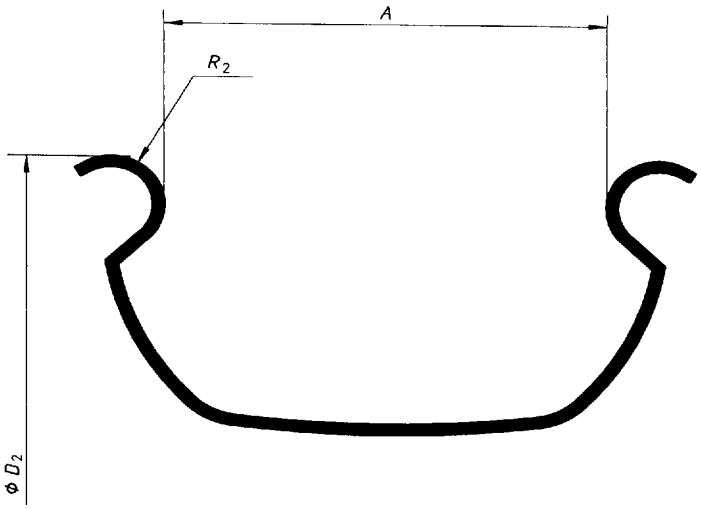


Figure A.2 — Hooked bead rims

Dimensions in millimetres

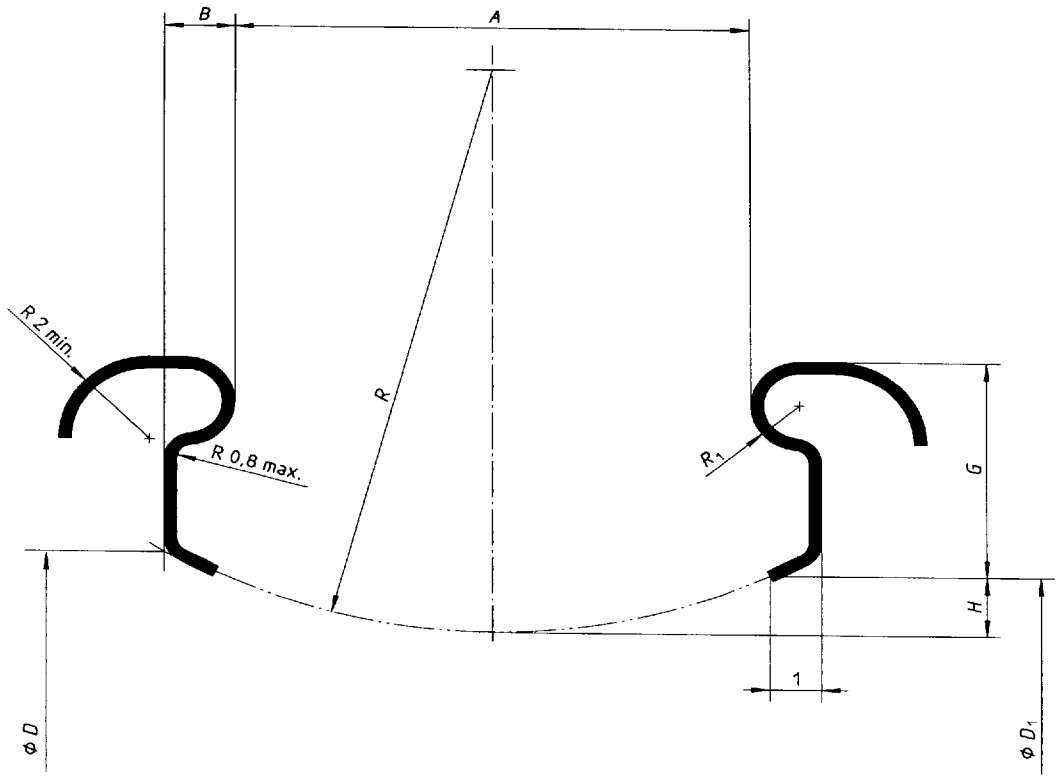


Figure A.3 — Crotchet type rims

A.4 Methods of measuring specified diameter and bead seat circumference

The first method (A.4.1) is applicable for straight side rims only. The second method (A.4.2) is applicable for straight side and crotchet type rims.

A.4.1 First method

The rim measurement is made around a standard level circumference related to the mandrel circumference.

A tape as illustrated in figure A.4 is used, care being taken to choose an appropriate tape for the rim to be measured. The tape shall be made of spring steel and contact the rim on both bead seats equally; it shall be flat, and marked with details of the rim width code and nominal rim diameter. The tape shall also be checked on an appropriate mandrel and on a flat surface: the straight end of the tape shall contact the other end within the notch. (See table A.1 and figures A.4, A.5 and A.6.)

The reference temperature for the measurement shall be 20 °C.

It is recommended that, except for experienced rim inspectors, two persons make the measurement — one holding the tape in position and applying not more that 50 N pull on the ends, and the other taking the readings.

A.4.2 Second method

The circumference of the upper part of both flanges is measured by means of a inextensible steel tape-line (10 mm width and 0,3 mm thickness, with 0,5 mm graduations), care being taken that it contacts the rim. The two outer circumference measurements U_{0A} and U_{0B} are recorded.

Using an appropriate vernier gauge (see figures A.7 and A.9), measure the height of both flanges at least at four points equally spaced around the circumference taking care that the correct protrusion (1 mm for cycle rims) is used. Calculate the average of the height for the two flanges, G_A and G_B.

Calculate the measured circumferences, U_{1A} and U_{1B}, using the equations:

$$U_{1A} = U_{0A} - 2\pi G_A$$

$$U_{1B} = U_{0B} - 2\pi G_B$$

Compare both circumferences with the product of D_1 values shown in table 2 by π.

NOTE — When rims have a difference of more than 2 mm between the two outer circumferences U_{0A} and U_{0B}, the vernier gauge should be appropriately applied and a spacer with a thickness δ, catering for the difference in circumference, inserted (see figure A.8).

$$\delta = \frac{|U_{0A} - U_{0B}|}{2\pi}$$

The spacer should be interposed between the top of the shorter flange and the vernier gauge as shown in figure A.8.

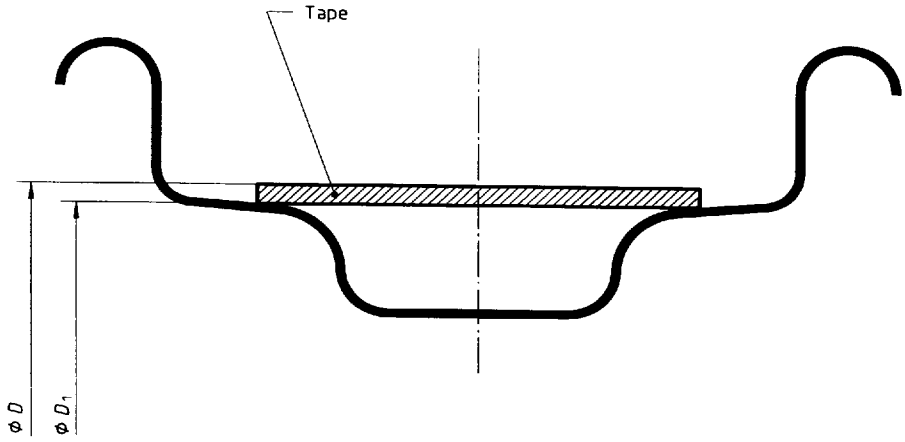


Figure A.4 — Rim diameter measurement

Dimensions in millimetres

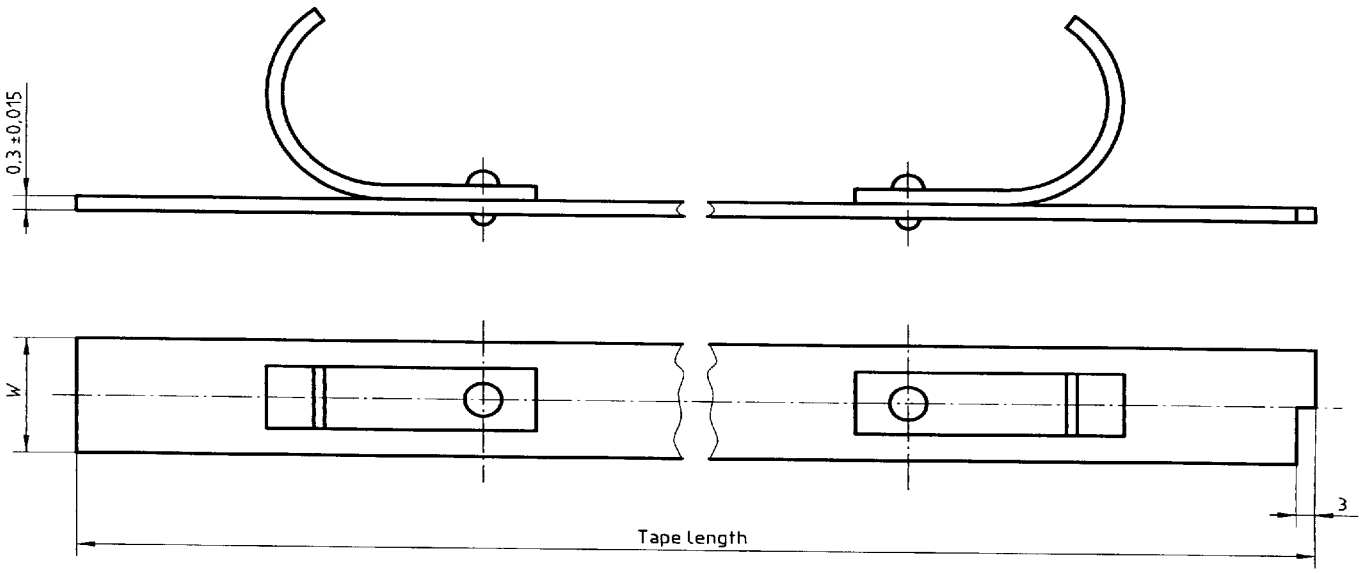
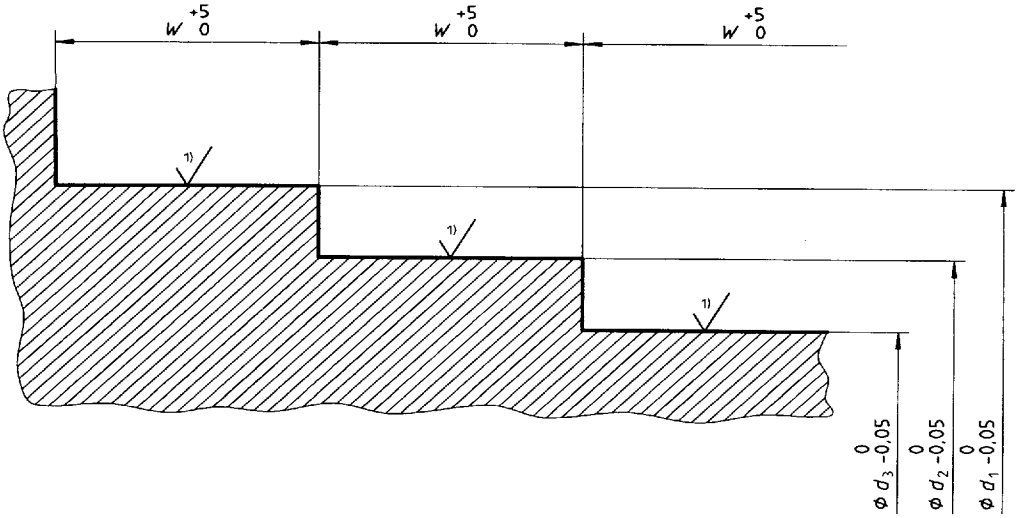


Figure A.5 — Tape dimensions

Dimensions in millimetres



1) Surface roughness value at the discretion of the person checking.

Figure A.6 — Tape mandrel

Table A.1 — Rim and tape widths

Dimensions in millimetres

Rim width	Tape width, W $^{0}_{-0,1}$
18	16
20	18
22	20
24	22
27	25
30,5	28,5

Dimensions in millimetres

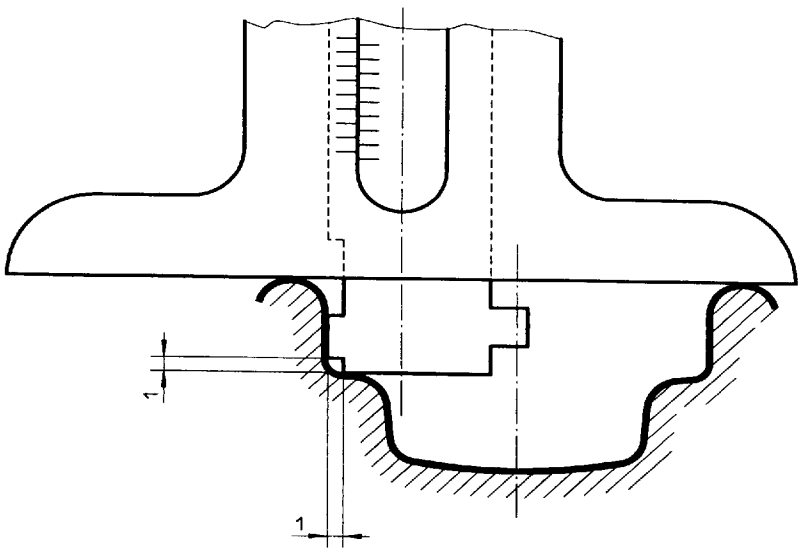


Figure A.7 — Vernier gauge with 1/20 mm graduations

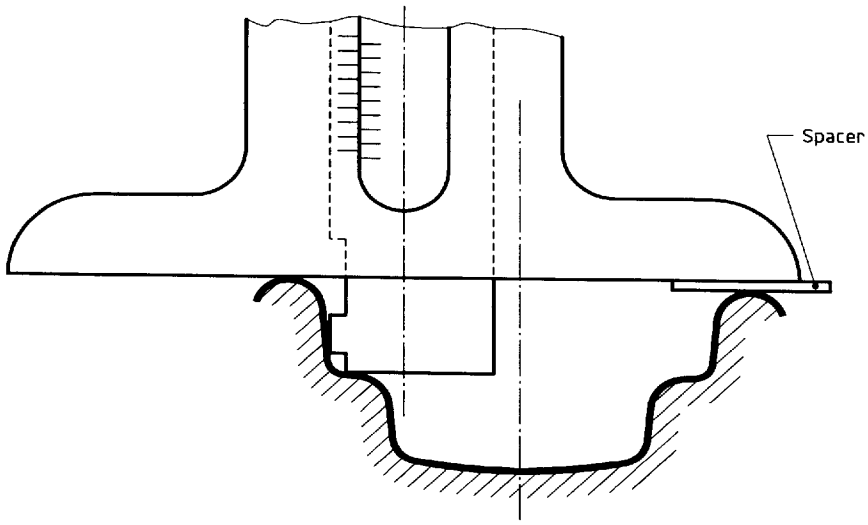
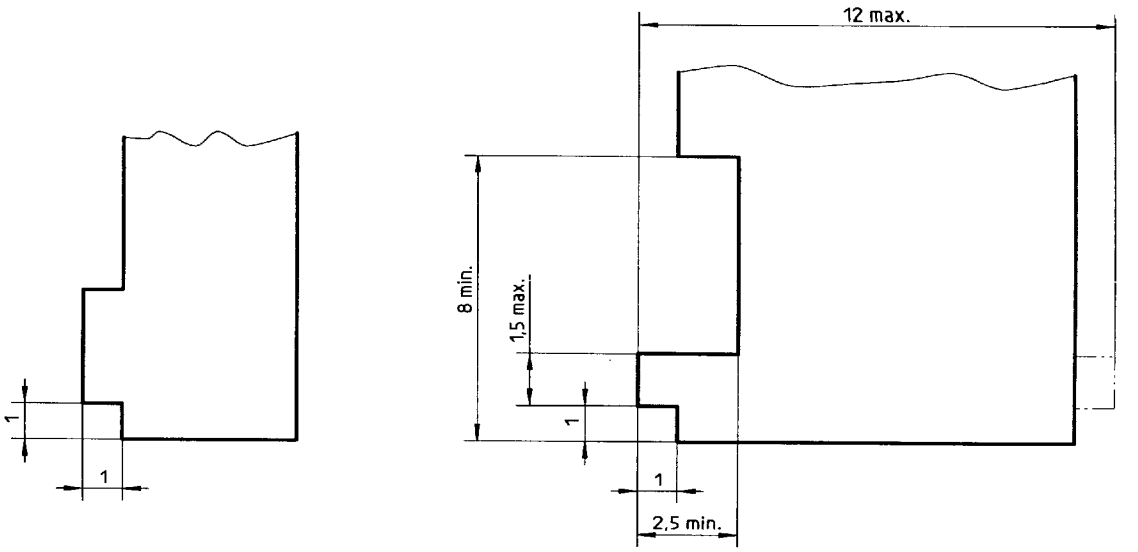


Figure A.8 — Use of vernier gauge with spacer

Dimensions in millimetres



a) For straight side rims

b) For crotchet type rims

Figure A.9 — Vernier gauge details for measuring flange height G

A.5 Measuring well width above rim tape

See figures A.10 and A.11.

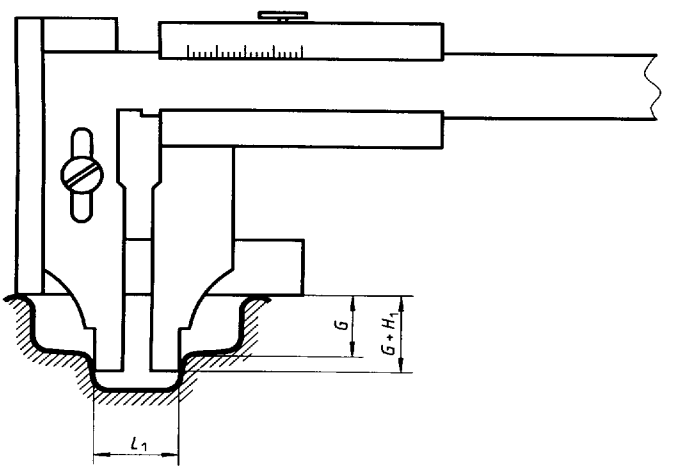


Figure A.10 — Measuring principle of well width above rim tape L_1

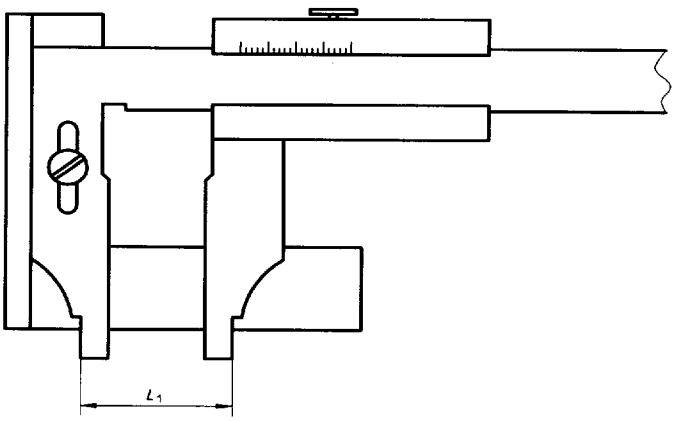


Figure A.11 — Calliper vernier for measuring dimension L_1

A.6 Measuring of bead seat angle, β

See figures A.12 and A.13.

Dimensions in millimetres

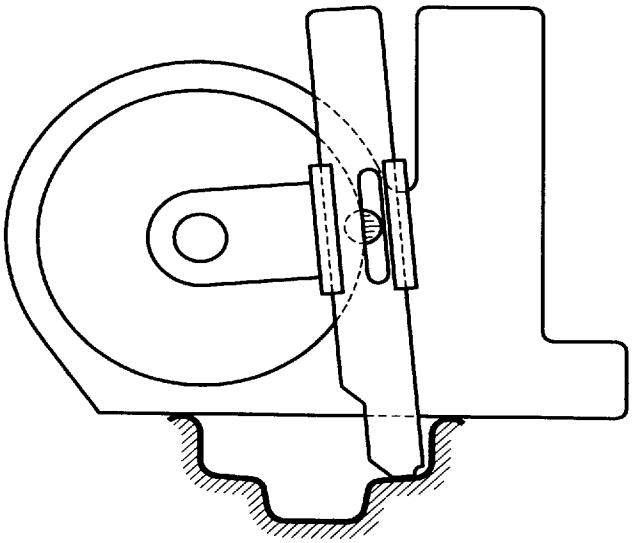


Figure A.12 — Measuring principle of bead seat angle β

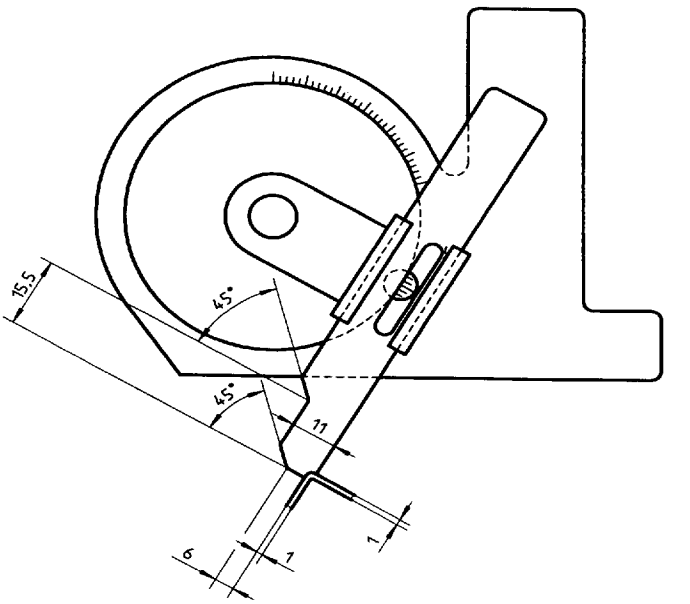


Figure A.13 — Tools for measuring β

A.7 Measuring other rim dimensions

The rim width at the bead seat, A_1, and the specified rim width, A, should be measured with a calliper vernier as illustrated in figure A.14.

Dimensions in millimetres

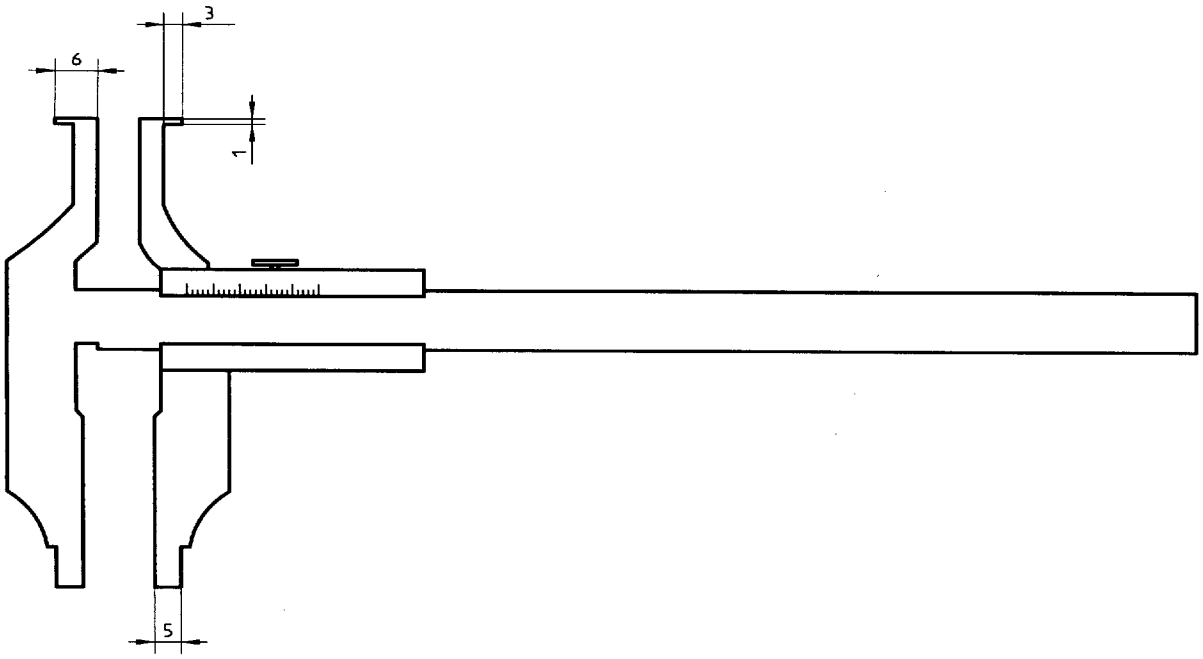


Figure A.14 — Calliper vernier for measuring rim widths

ICS 43.140

Descriptors: road vehicles, bicycles, vehicle wheels, rims, dimensions, dimensional measurements, designation.

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