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Cycles — Safety requirements for bicycles —

Part 4: Braking test methods

Cycles — Exigences de sécurité des bicyclettes —

Partie 4: Méthodes d'essai de freinage

ICS 43.150

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 4210-4 was prepared by Technical Committee ISO/TC 149, Cycles, Subcommittee SC 1, Cycles and major sub-assemblies.

ISO 4210 consists of the following parts, under the general title *Cycles — Safety requirements for bicycles*:

- *Part 1: Terms and definitions*
- *Part 2: Requirements for city & trekking, young adult, mountain and racing bicycles*
- *Part 3: Common test methods*
- *Part 4: Braking test methods*
- *Part 5: Steering test methods*
- *Part 6: Frame and fork test methods*
- *Part 7: Wheel and rim test methods*
- *Part 8: Pedal and drive system test methods*
- *Part 9: Saddle and seat-post test methods*

Introduction

This International Standard has been developed in response to demand throughout the world, and the aim has been to ensure that bicycles manufactured in compliance with it will be as safe as is practically possible. The tests have been designed to ensure the strength and durability of individual parts as well as of the bicycle as a whole, demanding high quality throughout and consideration of safety aspects from the design stage onwards.

The scope has been limited to safety considerations, and has specifically avoided standardisation of components.

If the bicycle is to be used on public roads, national regulations apply and it may be equipped with a lighting system.

Statement of WG9 regarding brake performance test methods:

- for the purpose of improvement of repeatability and reproducibility,
- considering the applicability to all types of bicycle and size and the influence of the operator

the machine test method reflects today state of the art and should be preferred to the track test method.

Unless evidence of improvement of the test track method in the future, the WG9 recommends to make this method informative for the next revision. Users of the standard are invited to provide their feedback to the ISO/TC149/SC1.

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Cycles — Safety requirements for bicycles —

Part 4: Braking test methods

1 Scope

This part of ISO 4210 specifies the braking test methods for ISO 4210-2.

2 Normative references

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

ISO 4210-1:–¹), *Cycles – Safety requirements for bicycles – Part 1: Terms and definitions*

ISO 4210-2:–²), *Cycles – Safety requirements for bicycles – Part 2: Requirements for city & trekking, young adult, mountain and racing bicycles*

ISO 4210-3:–³), *Cycles – Safety requirements for bicycles – Part 3: Common test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions are given in ISO 4210-1.

4 Test methods

4.1 Brake-lever grip dimensions

4.1.1 Test method for the brake-lever similar to Type A or Type B

Fit the gauge illustrated in Figure 1 over the handlebar-grip or the handlebar (when the manufacturer does not fit a grip) and the brake-lever as shown in Figures 2 so that the face A is in contact with the handlebar or grip and the side of the brake-lever. Ensure that the face B spans an area of that part of the brake-lever which is intended for contact with the rider's fingers without the gauge causing any movement of the brake-lever towards the handlebar or grip. Measure the distance *a*, the distance between the last part of the lever intended for contact with the rider's fingers and the end of the lever.

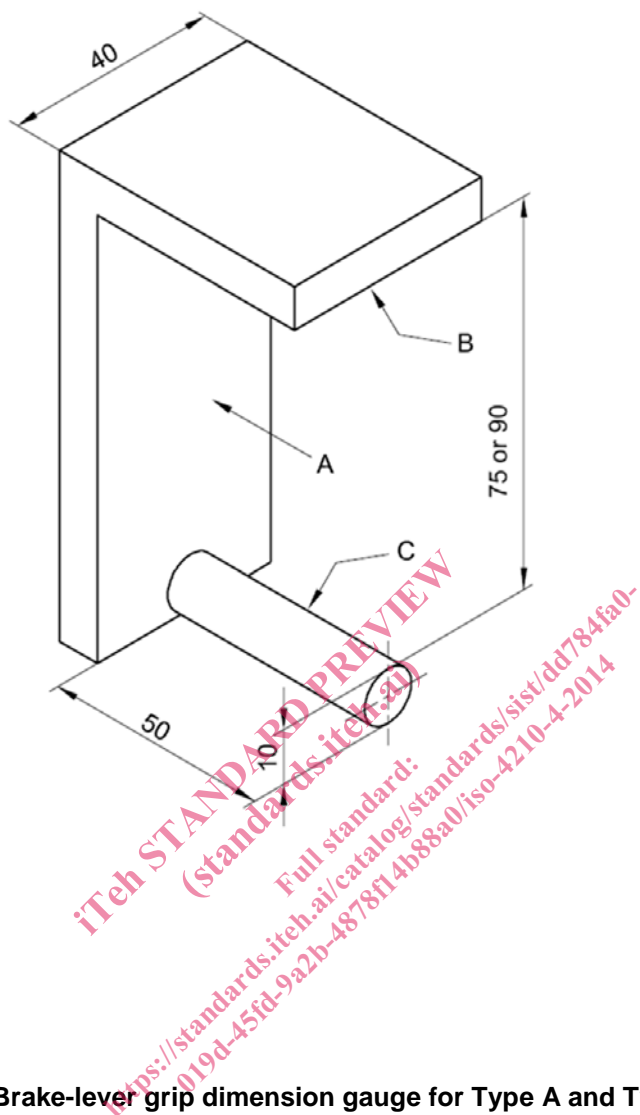
NOTE The measurement should be conducted only on a fully-assembled bicycle.

1) To be published. (Revision of ISO 4210:1996)

2) To be published. (Revision of ISO 4210:1996)

3) To be published. (Revision of ISO 4210:1996)

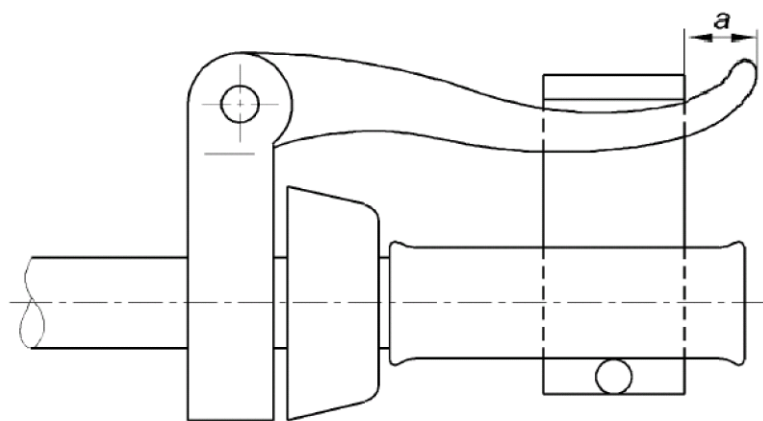
Dimensions in millimetres



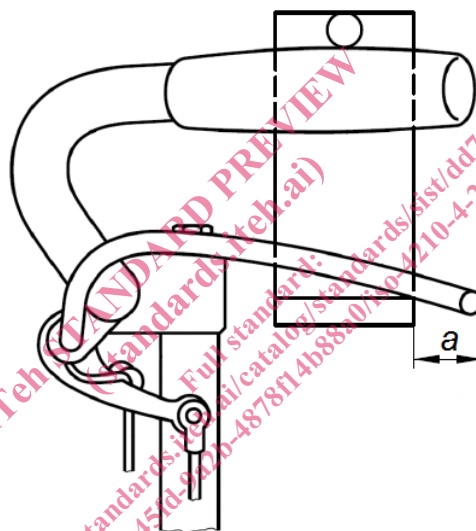
Key

- A Face A
- B Face B
- C Rod

Figure 1 — Brake-lever grip dimension gauge for Type A and Type B



a) Type A



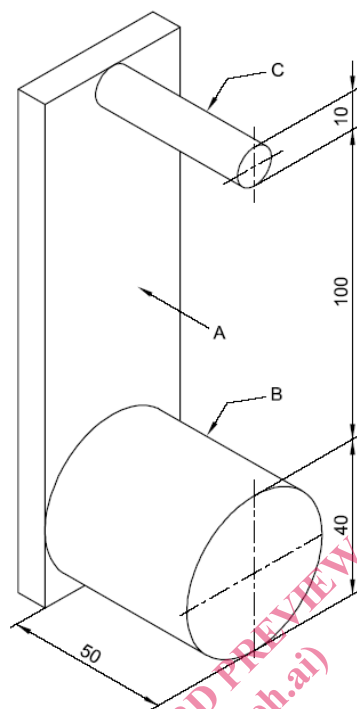
b) Type B

**Figure 2 — Method of fitting the gauge to the brake-lever and handlebar
(Minimum grip length is shown)**

4.1.2 Test method for the brake-lever similar to Type C

Fit the gauge illustrated in Figure 3 over the handlebar and brake lever as shown in Figure 4 so that the face A contacts the handlebar or handlebar-grip and the brake-lever. Put the face of cylinder B in contact with the part of the grip intended for contact with rider's hand and check if the requirements are met.

Dimensions in millimetres



Key

- A Face A
- B Face of cylinder
- C Rod

Figure 3 — Brake-lever grip-dimension gauge for Type C

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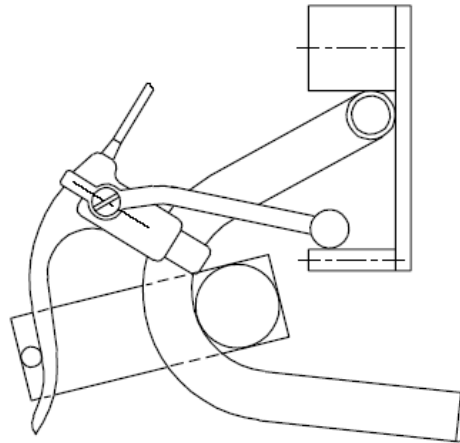


Figure 4 — Method of fitting the gauge to the brake-lever and handlebar for Type C

4.2 Brake-levers – Position of applied force

4.2.1 Type A and B brake levers

For the purposes of braking tests in this standard, for brake-levers similar to Type A or Type B, the test force shall be applied at a distance, b , which is equal to either dimension a (see ISO4210-2:–, Figure 3 a) and b)) as determined in 4.1.1 or 25 mm from the free end of the brake-lever, whichever is the greater (see Figure 5 a) and b)).

4.2.2 Type C brake levers

For the purposes of braking tests in this standard, for brake-levers similar to Type C, the test force shall be applied at a distance of 25 mm from the free end of the brake-lever (see Figure 5 c)).