INTERNATIONAL STANDARD

ISO 4210-4

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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

Reference number
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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.

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.

This first edition of ISO 4210-4, together with ISO 4210-1, ISO 4210-2, ISO 4210-3, ISO 4210-5, ISO 4210-6, ISO 4210-7, ISO 4210-8, and ISO 4210-9, cancels and replaces ISO 4210:1996, which has been technically revised.

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 and 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: Wheels and rims test methods*

— *Part 8: Pedals and drive system test methods*

— *Part 9: Saddles and seat-post test methods*

This corrected version of ISO 4210-4:2014 incorporates a date's change in 4.6.1, 4.6.3.6, 4.6.3.9, 4.6.3.10, 4.6.3.11 and 4.6.5.7 e) and two technical corrections in Annex A.

Introduction

This International Standard has been developed in response to the demand throughout the world. The aim is to ensure that bicycles manufactured in compliance with this International Standard will be as safe as is practically possible. The tests are 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 is limited to safety considerations, and has specifically avoided standardization of components.

If the bicycle is to be used on public roads, national regulations apply.

For the purpose of improvement of repeatability and reproducibility, and considering the applicability to all types of bicycle and the size and influence of the operator, the machine test method reflects today's state of the art and is preferred to the track test method.

Unless there is evidence of improvement of the test track method in the future, make this method informative for the next revision. Users of this International Standard are invited to provide their feedback to the ISO/TC 149/SC 1.

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, 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 4210-1, *Cycles — Safety requirements for bicycles — Part 1: Terms and definitions*

ISO 4210-2:2014, *Cycles — Safety requirements for bicycles — Part 2: Requirements for city & trekking, young adult, mountain and racing bicycles*

3 Terms and definitions

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

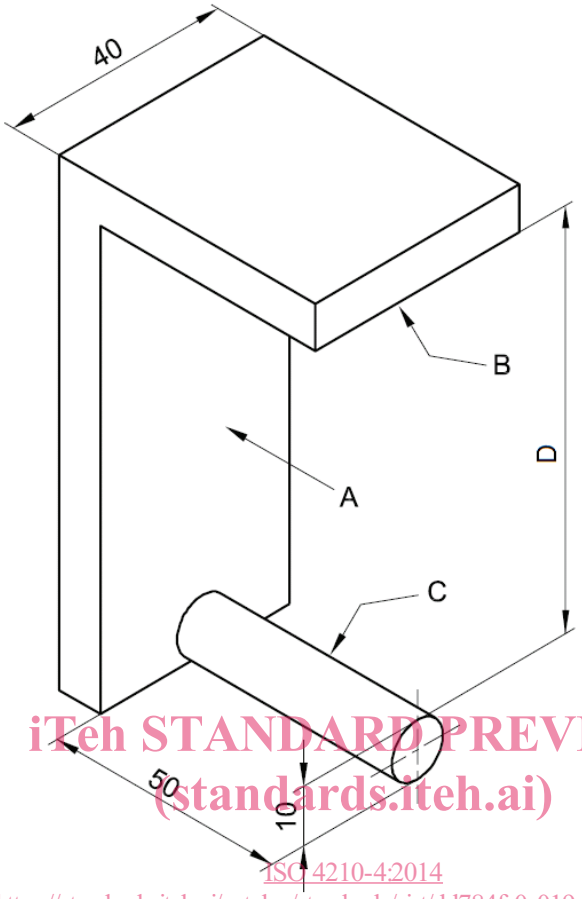
4 Test methods

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 Figure 2 so that face A is in contact with the handlebar or grip and the side of the brake lever. Ensure that 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. The measurement should be conducted only on a fully assembled bicycle.

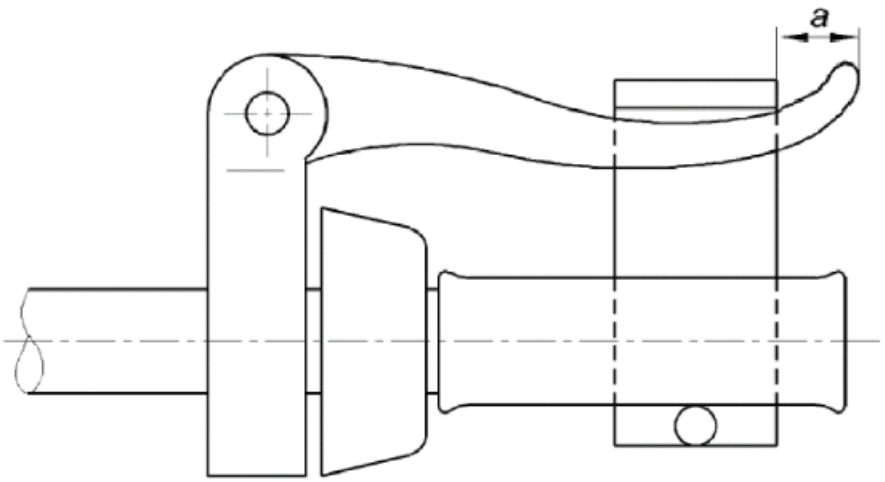
Dimensions in millimetres



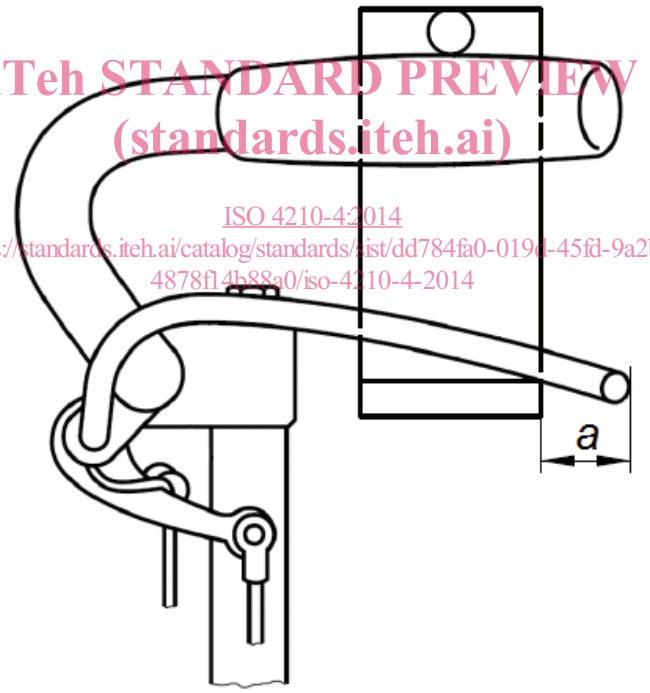
Key

A face A
B face B
C rod
D 75 mm or 90 mm

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



a) Type A



b) Type B

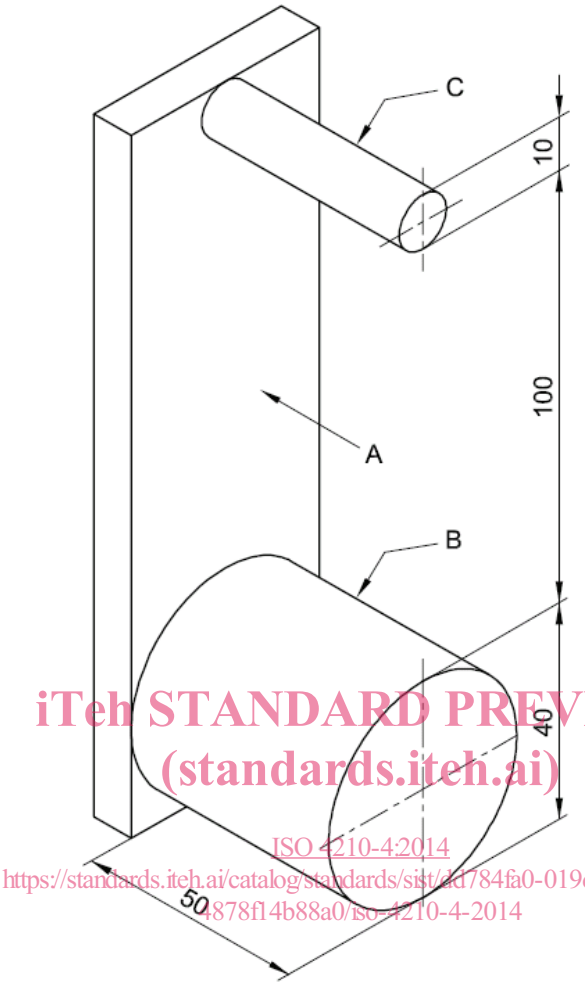
NOTE Minimum grip length is shown.

Figure 2 — Method of fitting the gauge to the brake lever and handlebar

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 face A is in contact with 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 the 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

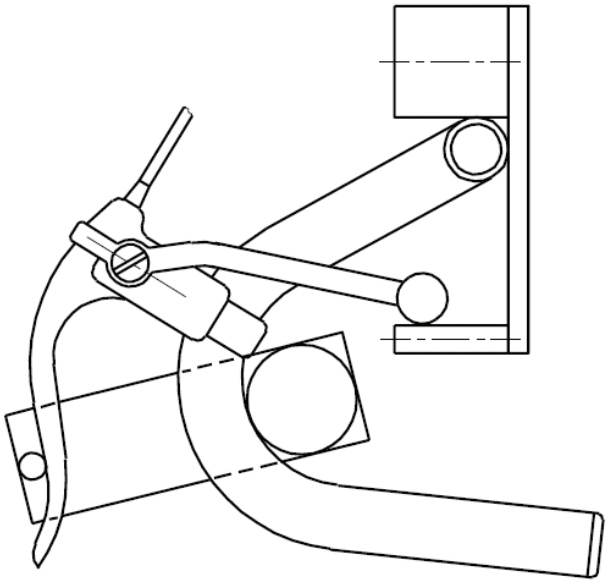


Figure 4 — Method of fitting the gauge to the brake lever and handlebar for type C

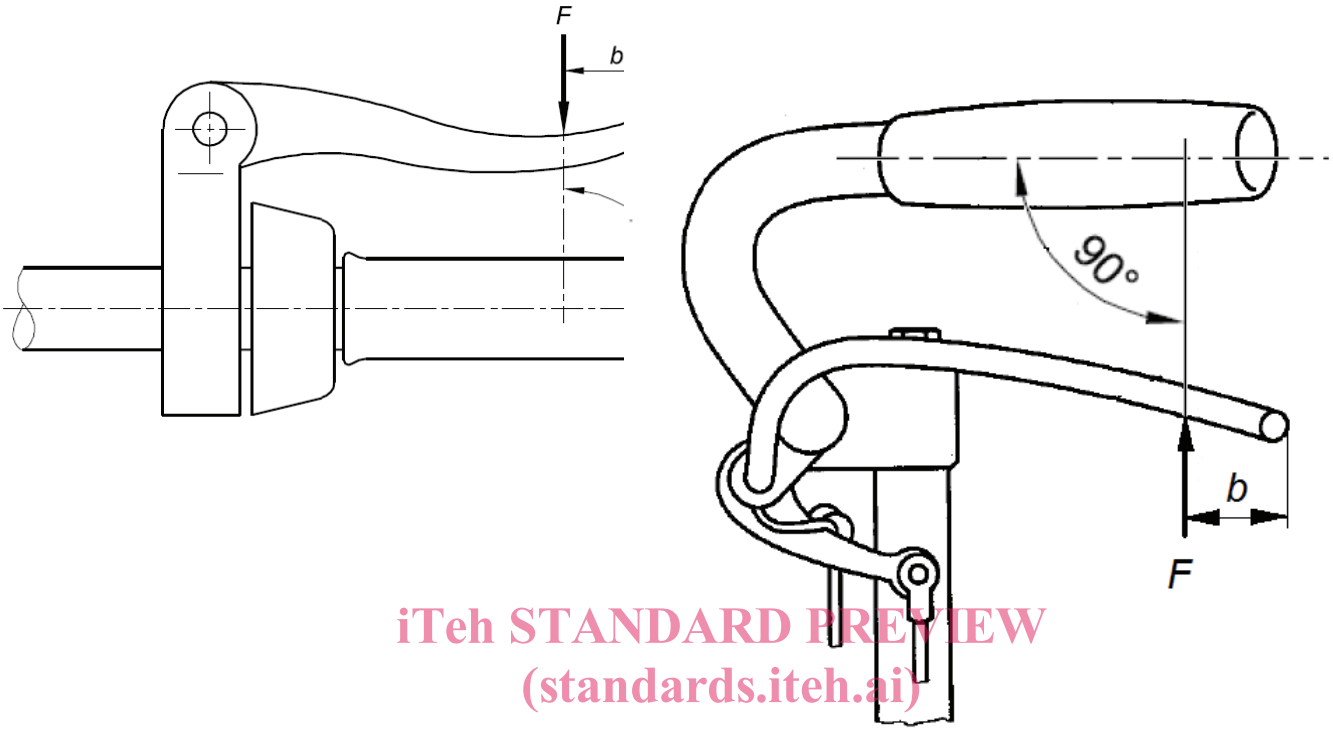
4.2 Brake levers — Position of applied force

4.2.1 Type A and B brake levers

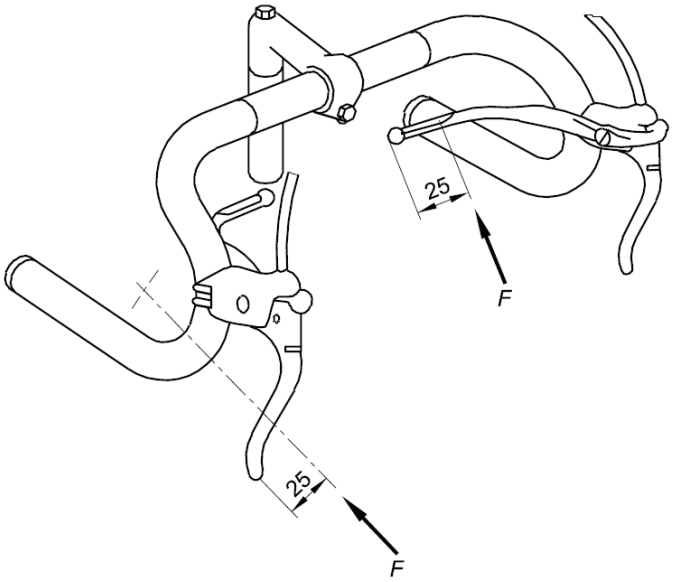
For the purposes of braking tests in this part of ISO 4210, for brake levers similar to type A or type B, the test force shall be applied at a distance *b*, which is equal to either dimension *a* [see ISO 4210-2:2014, Figure 2 a) and b)] as determined in 4.1.1 or 25 mm from the free end of the brake lever, whichever is the greater [see Figure 5 a) and Figure 5 b)].

4.2.2 Type C brake levers

For the purposes of braking tests in this part of ISO 4210, 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)].



a) Type A **b) Type B**



c) Type C