DRAFT INTERNATIONAL STANDARD ISO/DIS 4210-5

ISO/TC **149**/SC **1** Secretariat: **JISC**

Voting begins on **2012-11-08** Voting terminates on **2013-04-08**

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

Cycles — Safety requirements for bicycles —

Part 5:
Steering test methods

Cycles — Exigences de sécurité des bicyclettes —

Partie 5: Méthodes d'essai de guidage

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.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

Contents

Page

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 4210-5 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.

Cycles — Safety requirements for bicycles —

Part 5:
Steering test methods

1 Scope

This part of ISO 4210 specifies the steering 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 Handlebar grips and plugs

4.1.1 Freezing test

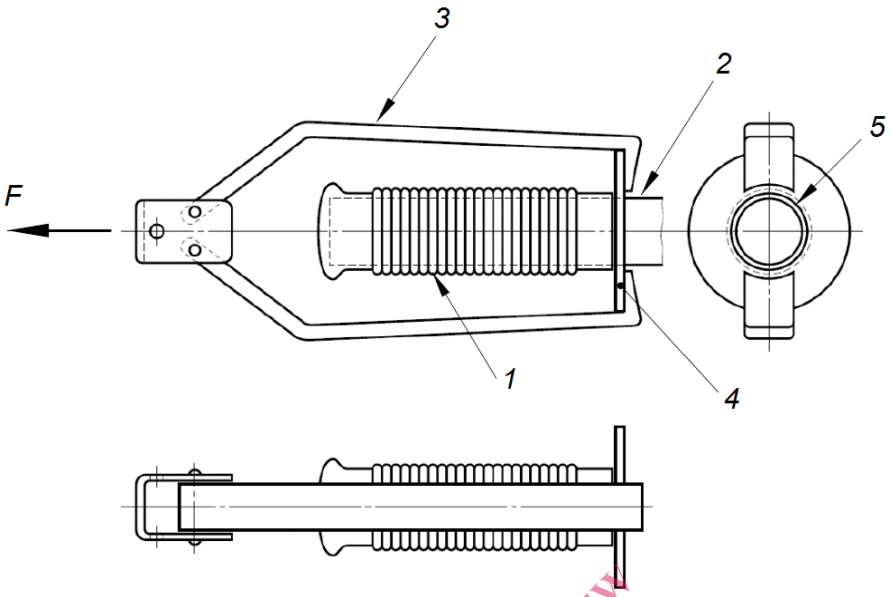
Immerse the handlebar, with handlebar grips or plugs fitted, in water at room temperature for one hour and then place the handlebar in a freezer until the handlebar is at a temperature lower than -5 °C. Remove the handlebar from the freezer and allow the temperature of the handlebar to reach -5 °C, and then apply a force of 70 N to the grip or plug in the loosening direction as shown in Figure 1. Maintain the force until the temperature of the handlebar has reached +5 °C.

NOTE It shall be permitted to create a hole in the plug to allow for the testing fixture to be fitted so long as the hole does not affect the seat of the plug in the handlebar and the fixture does not contact the handlebar during the test.

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)



Key

1 Handlebar grip

2 Handlebar

3 Drawing attachment

4 Hooking ring

5 Clearance

NOTE The hooking ring can be divided.

Figure 1 — Example of handlebar grip drawing attachment

4.1.2 Hot water test

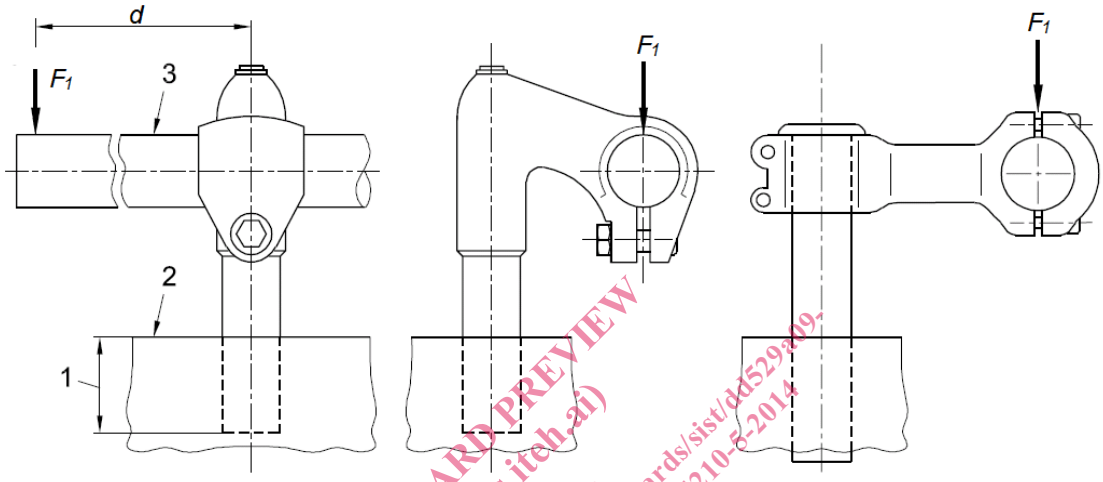
Immerse the handlebar, with handlebar grips fitted, in hot water of +60 °C ± 2 °C for one hour. Remove the handlebar from the hot water, allow the handlebar to stabilise at ambient temperature for 30 min, apply a force of 100 N to the grip in the loosening direction as shown in Figure 1. Maintain this force for 1 min.

4.2 Handlebar-stem – Lateral bending test

For stems which have a quill for insertion into a fork steerer, clamp the quill securely in a fixture to the minimum insertion depth (see ISO 4210-2:–, 4.6.3), or, for stem extensions which clamp directly on to an extended fork-stem attach the extension to a fork-stem according to the manufacturer's instructions and clamp this fork steerer securely in a fixture to the appropriate height. Assemble a test-bar to the stem, and apply a force of F_1 at a distance of d from the axis of the stem as shown in Table 1 and Figure 2. Maintain this force for 1 min.

Table 1 — Forces and distances on handlebars

Bicycle type	City and trekking bicycles	Young adult bicycles	Mountain bicycles	Racing bicycles
Force, F_1 N	600	600	1 000	1 000
Distance, d mm	300	300	300	230



a) Combine stem and quill b) Stem extension

Key

1 Minimum insertion depth

2 Clamping block

3 Solid steel bar

Figure 2 — Handlebar-stem: lateral bending test

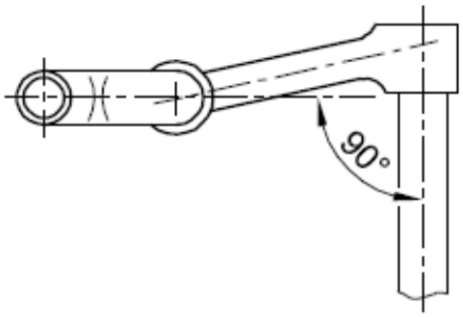
4.3 Handlebar and stem assembly – Lateral bending test

Assemble the handlebar and stem in accordance with the manufacturer's instructions and, unless the handlebar and stem are permanently connected, e.g. by welding or brazing, align the grips portion of the handlebar in a plane perpendicular to the stem axis (see Figure 3 a) or Figure 4 a)). For stems which have a quill for insertion in to a fork steerer, clamp the quill securely in a fixture to the minimum insertion depth, or, for stem extensions which clamp directly on to an extended fork steerer attach the extension to a fork steerer according to the manufacturer's instructions and clamp this fork steerer securely in a fixture to the appropriate height. Apply a force of F_2 (Table 2) at a distance of 50 mm from the free end of the handlebar and parallel to the axis of the fork steerer as shown in Figures 3 or 4. Maintain this force for 1 min.

Table 2 — Forces on handlebars

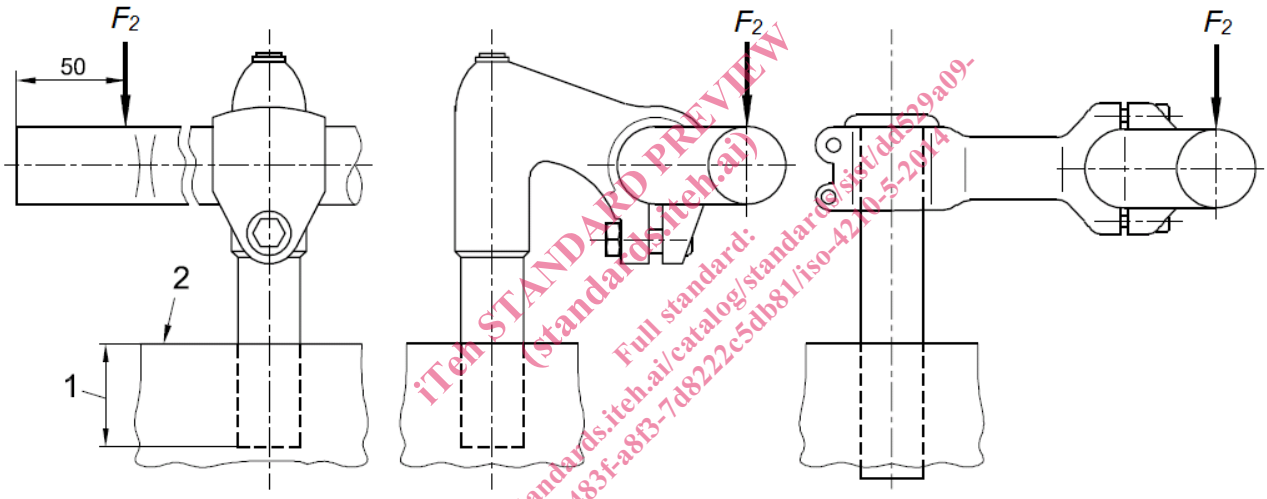
Force in N

Bicycle type	City and trekking bicycles	Young adult bicycles	Mountain bicycles	Racing bicycles
Force, F_2	600	600	1 000	1 000



a) Orientation of adjustable handlebars

Dimensions in millimetres



b) Combined stem and quill

c) Stem extension

Key

1 Minimum insertion depth

2 Clamping block

Figure 3 — Handlebar and stem assembly: lateral bending test for city & trekking, young adult and mountain bicycles