
**Cycles — Safety requirements for
bicycles —**

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

Cycles — Exigences de sécurité des bicyclettes —

Partie 9: Méthodes d'essai de la selle et du poste d'assise

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ISO 4210-9:2014

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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 4210-9, together with ISO 4210-1, ISO 4210-2, ISO 4210-3, ISO 4210-4, ISO 4210-5, ISO 4210-6, ISO 4210-7, and ISO 4210-8, 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*

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 this International Standard 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 standardization of components.

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

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Cycles — Safety requirements for bicycles —

Part 9: Saddles and seat-post test methods

1 Scope

This part of ISO 4210 specifies saddle and seat-post test methods for ISO 4210-2.

2 Normative references

The following 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 and trekking, young adult, mountain and racing bicycles*

ISO 4210-3:2014, *Cycles — Safety requirements for bicycles — Part 3: Common test methods*

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 General

If a suspension seat-post is involved, the test may be conducted with the suspension system either free to operate or locked. If it is locked, the pillar shall be at its maximum length.

4.2 Saddle/seat-post — Security test

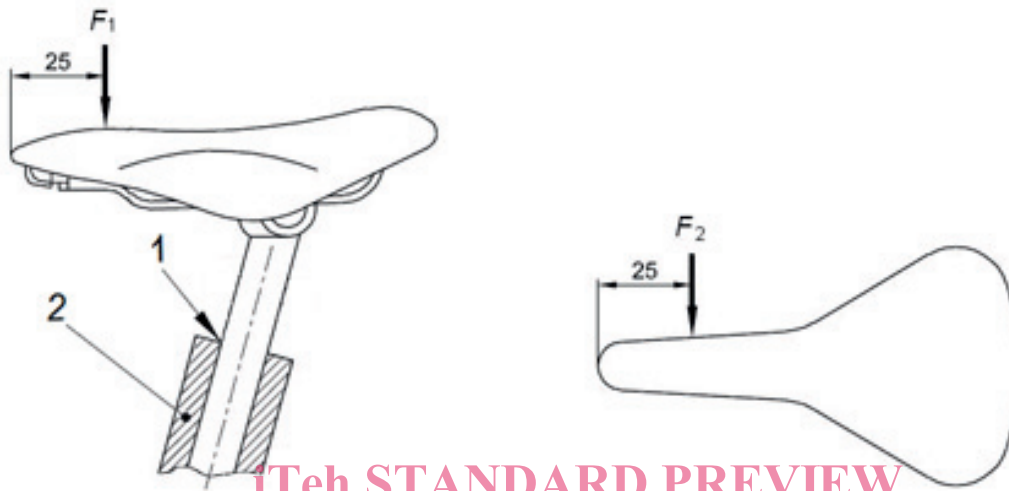
With the seat-post correctly assembled to the bicycle frame at minimum insertion depth of the seat-post (as specified in ISO 4210-2:2014, 4.16.2), and the clamps tightened to the torque recommended by the bicycle manufacturer, apply a force of F_1 vertically downwards at a point 25 mm from either the front or rear of the saddle, whichever produces the greater torque on the saddle clamp. The saddle shall be positioned in the seat-post clamp assembly as defined by the saddle manufacturer's rail markings or instructions. Maintain this force for 1 min. Remove this force and apply a lateral force of F_2 horizontally at a point 25 mm from either the front or rear of the saddle and maintain this force for 1 min, whichever produces the greater torque on the clamp (see [Figure 1](#)). The forces are given in [Table 1](#). The fixture shall be such that it does not damage the surface of the saddle.

Table 1 — Forces on saddle

Forces in newtons

| Bicycle type | City and trekking bicycles | Young adult bicycles | Mountain bicycles | Racing bicycles |
|-------------------------|----------------------------|----------------------|-------------------|-----------------|
| Vertical force, F_1 | 650 | 650 | 650 | 650 |
| Horizontal force, F_2 | 250 | 250 | 250 | 250 |

Dimensions in millimetres



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a) Vertical force

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b) Horizontal force

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Key

- 1 minimum insertion-depth mark
- 2 bicycle frame

Figure 1 — Saddle/seat-post — Security test

4.3 Saddle — Static strength test

Position the saddle in its maximum rearward direction as defined by the saddle manufacturer’s rail markings or instructions, into a suitable fixture representative of a seat-post clamp assembly. Tighten the clamps to the torque recommended by the bicycle manufacturer, and apply forces of 400 N in turn under the rear and nose of the saddle cover, as shown in [Figure 2](#), ensuring that the force is not applied to any part of the chassis of the saddle. The load application point is on the longitudinal plane of the saddle at 25 mm from the back (front) of the saddle. If the saddle design is such that it cannot accept a centreline

load application, the load shall be symmetrically applied at two points of the saddle. Loading on the rear of the saddle shall be symmetrical about its longitudinal axis, as shown in [Figure 3](#).

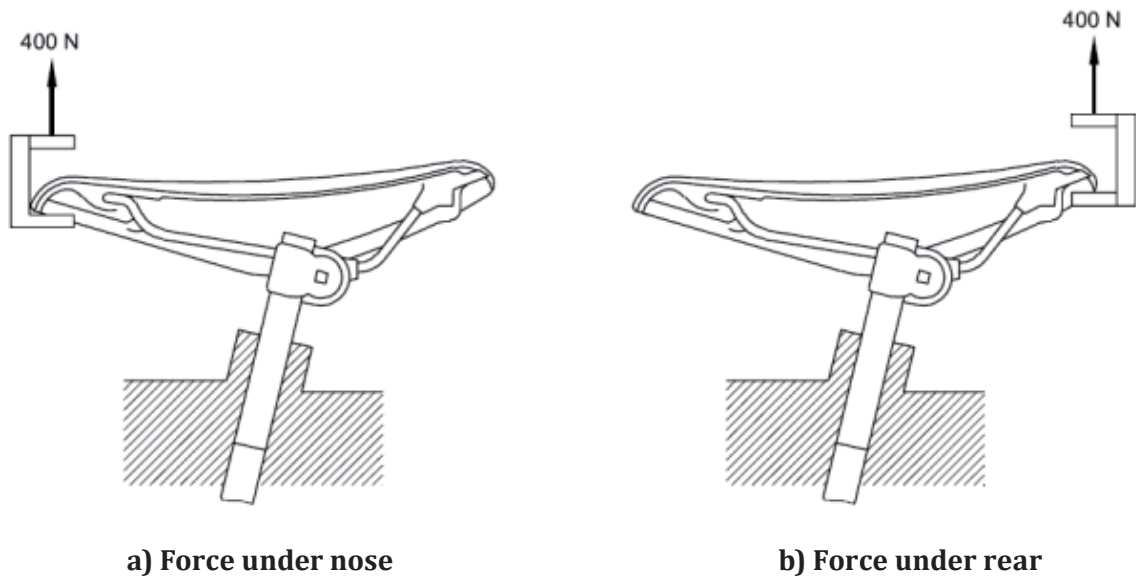
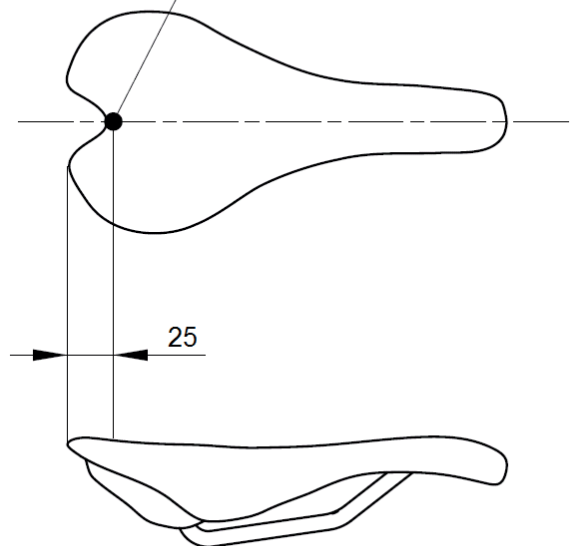


Figure 2 — Saddle — Static strength test
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Dimensions in millimetres

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Key

- 1 loading point

Figure 3 — Saddle — Load application point of static strength test