INTERNATIONAL STANDARD

**ISO 4210-3**

First edition
2014-07-01

# Cycles — Safety requirements for bicycles —

## Part 3: Common test methods

*Cycles — Exigences de sécurité des bicyclettes —*

*Partie 3: Méthodes d'essai communes*



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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 4210-3, together with ISO 4210-1, ISO 4210-2, ISO 4210-4, 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*

 

# Introduction

This International Standard was developed in response to a 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.

# Cycles — Safety requirements for bicycles —

# Part 3:
# Common test methods

## 1 Scope

This part of ISO 4210 specifies the common 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 and trekking, young adult, mountain and racing bicycles*

ISO 4210-4:2014, *Cycles — Safety requirements for bicycles — Part 4: Braking 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 Brake tests and strength tests

#### 4.1.1 Definition of brake tests

Brake tests to which accuracy requirements apply, as in 4.1.4, are those specified in ISO 4210-2:2014, 4.6.3 to 4.6.6, ISO 4210-4:2014, 4.2, and ISO 4210-4:2014, 4.6.3.3.

#### 4.1.2 Definition of strength tests

Strength tests to which accuracy requirements apply, as in 4.1.4, are those involving static, impact, or fatigue loading as specified in ISO 4210-2:2014, 4.7 to 4.13, ISO 4210-2:2014, 4.16, and ISO 4210-2:2014, 4.20.2.

#### 4.1.3 Numbers and condition of specimens for the strength tests

In general, for static, impact, and fatigue tests, each test shall be conducted on a new test sample, but if only one sample is available, it is permissible to conduct all of these tests on the same sample with the sequence of testing being fatigue, static, and impact.

When more than one test is conducted on the same sample, the test sequence shall be clearly recorded in the test report or record of testing. It should be noted that if more than one test is conducted on the same sample, earlier tests can influence the results of subsequent tests. Also, if a sample fails when it has been subjected to more than one test, a direct comparison with single testing is not possible.

In all strength tests, specimens shall be in the fully finished condition.

#### 4.1.4 Accuracy tolerances of test conditions for brake tests and strength tests

Unless stated otherwise, accuracy tolerances based on the nominal values shall be as follows.

| | |
|---|---|
| Forces and torques | 0/+5 % |
| Masses and weights | ±1 % |
| Dimensions | ±1 mm |
| Angles | ±1° |
| Time duration | ±5 s |
| Temperatures | ±2 °C |
| Pressures | ±5 % |

### 4.2 Front mudguard test methods

#### 4.2.1 Front mudguard with stays test methods



##### 4.2.1.1 Stage 1: Test method — Tangential obstruction

Insert a 12-mm-diameter steel rod between the spokes, in contact with the rim and below the front mudguard stays as shown in Figure 1, and rotate the wheel to apply a tangentially upward force of 160 N, against the front mudguard stays; maintain this force for 1 min.



Remove the rod and determine whether or not the wheel is free to rotate and whether or not any damage to the front mudguard adversely affects wheel rotation (blocking of the wheel) and the steering.

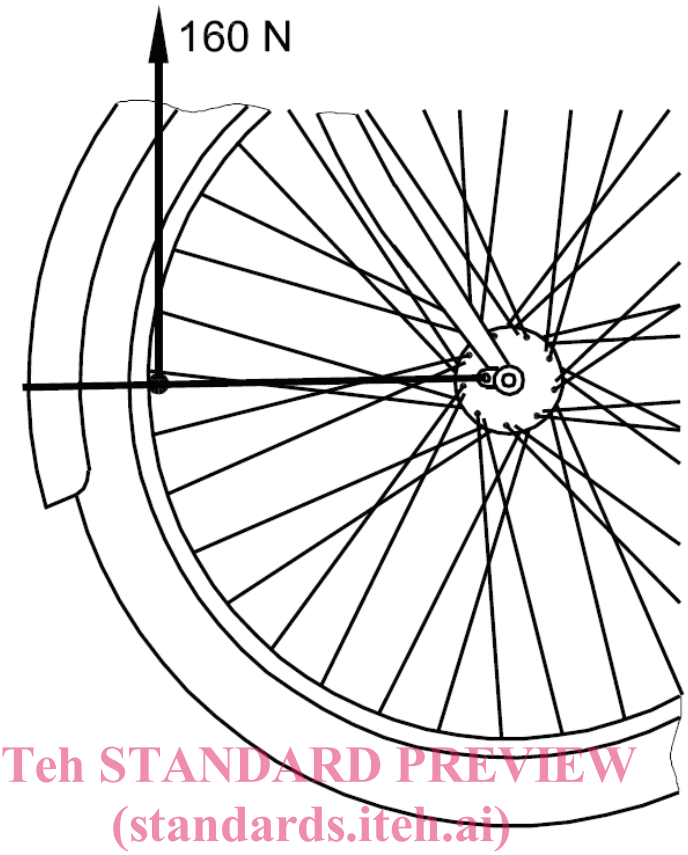




**Figure 1 — Front mudguard — Tangential obstruction test**



#### 4.2.1.2 Stage 2: Test method — Radial force

Press the front mudguard at a distance of 20 mm from its free end (not taking the flap into consideration) with a 20-mm-diameter, flat-ended tool radially towards the tyre with a force of 80 N as shown in Figure 2.