
**Cycles — Safety requirements for
bicycles —**

**Part 1:
Terms and definitions**

Cycles — Exigences de sécurité des bicyclettes —

Partie 1: Termes et définitions
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Contents	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Terms and definitions	1
Bibliography	6

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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 4210-1, together with ISO 4210-2, ISO 4210-3, 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 rim 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 1: Terms and definitions

1 Scope

This part of ISO 4210 specifies terms and definitions related to safety and performance requirements for the design, assembly, and testing of bicycles and sub-assemblies having saddle height as given in [Table 1](#).

This part of ISO 4210 does not apply to specialized types of bicycle such as delivery bicycles, recumbent bicycles, tandems, BMX bicycles, and bicycles designed and equipped for use in severe applications such as sanctioned competition events, stunting, or aerobatic manoeuvres.

NOTE For bicycles with a maximum saddle height of 435 mm or less, see ISO 8124-1, and with a maximum saddle height of more than 435 mm and less than 635 mm, see ISO 8098.

Table 1 — Maximum saddle height
Dimensions in millimetres

Bicycle type	City and trekking bicycles	Young adult bicycles	Mountain bicycles	Racing bicycles
Maximum saddle height	635 or more	635 or more and less than 750	635 or more	635 or more

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

aerodynamic extension

extension (or extensions) secured to the handlebar or stem, to improve the rider's aerodynamic posture

2.2

band brake

brake in which a circumferential band is wrapped around the exterior of a cylindrical drum which is attached to or incorporated in the wheel-hub

2.3

bar end

extension secured to the end of a handlebar to provide an additional hand grip and usually with its axis perpendicular to the axis of the end of the handlebar

2.4

bicycle

two-wheeled vehicle that is propelled solely or mainly by the muscular energy of the person on that vehicle, in particular by means of pedals

2.5

bolted joint

components joined together with threaded fasteners

2.6

brake lever

lever that operates a braking device

2.7

braking distance

distance travelled by a bicycle between the *commencement of braking* (2.10) and the point at which the bicycle comes to rest

2.8

braking force

F_{Br}

tangential rearward force between the tyre and the ground, or the tyre and the drum or belt of the test machine

2.9

city and trekking bicycle

bicycle designed for use on public roads primarily for means of transportation or leisure

2.10

commencement of braking

point on the test track or test machine at which the brake-actuating device operated directly by the rider's hand or foot or by a test mechanism starts to move from its rest position

Note 1 to entry: On the test track, this point is determined by the first brake-actuating device (front or rear) to operate.

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2.11

composite material

component that is entirely or partially made of a non-metallic matrix materials which is reinforced by metallic or non-metallic materials such as short or long fibres, fabric, or particles

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2.12

composite wheels

wheel assembly containing any composite material

2.13

crank assembly

assembly for fatigue testing consisting of the drive side and the non-drive side crank arm, the pedal-spindle adaptors, the bottom-bracket spindle, and the first component of the drive system

EXAMPLE The chain-wheel set.

2.14

delivery bicycle

bicycle designed for the primary purpose of carrying goods

2.15

disc brake

brake in which pads are used to grip the lateral faces of a thin disc attached to or incorporated in the wheel hub

2.16

drive belt

seamless ring belt which is used as a means of transmitting motive force

2.17**exposed protrusion**

protrusion which, through its location and rigidity, could present a hazard to the rider either through heavy contact with it in normal use or should the rider fall onto it in an accident

2.18**dummy fork**

test fork manufactured to specific characteristics which can be substituted within a test for either the fork supplied by the manufacturer or where a fork has not been supplied

2.19**folding bicycle**

bicycle designed to fold into a compact form, facilitating transport and storage

2.20**fracture**

unintentional separation into two or more parts

2.21**fork steerer (fork stem)**

part of a fork that rotates about the steering axis of a bicycle frame head tube

Note 1 to entry: It is normally connected to the fork crown or directly to the fork legs and is normally the point of connection between the fork and the handlebar stem.

2.22**fully assembled bicycle**

bicycle fitted with all components necessary for its intended use

2.23**highest gear**

gear ratio which gives the greatest distance travelled for one rotation of the cranks

2.24**hub brake**

brake which acts directly on the wheel hub

2.25**hub generator**

electric generating device built in the wheel hub

2.26**lowest gear**

gear ratio which gives the shortest distance travelled for one rotation of the cranks

2.27**maximum inflation pressure**

maximum tyre pressure recommended by the tyre or rim manufacturer for a safe and efficient performance

Note 1 to entry: If the rim and tyre both indicate a maximum inflation pressure, the maximum inflation pressure is the lower of the two pressures indicated.

2.28**maximum saddle height**

vertical distance from the ground to the point where the top of the seat surface is intersected by the seat-post axis, measured with the seat in a horizontal position and with the seat-post set to the minimum insertion-depth mark