
Kolesa - Varnostne zahteve za kolesa - 2. del: Zahteve za mestna in trekking kolesa, kolesa za mlade, gorska in tekmovalna kolesa (ISO/DIS 4210-2:2021)

Cycles - Safety requirements for bicycles - Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles (ISO/DIS 4210-2:2021)

Fahrräder - Sicherheitstechnische Anforderungen an Fahrräder - Teil 2: Anforderungen für City- und Trekkingfahrräder, Jugendfahrräder, Geländefahrräder (Mountainbikes) und Rennräder (ISO/DIS 4210-2:2021)

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Cycles - Exigences de sécurité des bicyclettes - Partie 2 : Exigences pour bicyclettes de ville et tout chemin (trekking), jeunes adultes, tout terrain et de course (ISO/DIS 4210-2:2021)

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97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment

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Cycles — Safety requirements for bicycles —

Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles

*Cycles — Exigences de sécurité des bicyclettes —**Partie 2: Exigences pour bicyclettes de ville et tout chemin (trekking), jeunes adultes, tout terrain et de course*

ICS: 43.150

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
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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).

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This document was prepared by Technical Committee ISO/TC 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.
oSIST prEN ISO 4210-2:2022

This **third** edition cancels and replaces the **second** edition (ISO 4210-2:2015), which has been technically revised.
<https://standards.iteh.ai/catalog/standards/sist/e2490861-ce3f-4556-a5b4->

The main changes compared to the previous edition are as follows:

— **xxx xxxxxxxx xxx xxx**

A list of all parts in the ISO 4210 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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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1 Cycles — Safety requirements for bicycles — Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles

3 1 Scope

4 This part of ISO 4210 specifies safety and performance requirements for the design, assembly, and testing
5 of bicycles and sub-assemblies having saddle height as given in Table 1, and lays down guidelines for
6 manufacturer's instructions on the use and care of such bicycles.

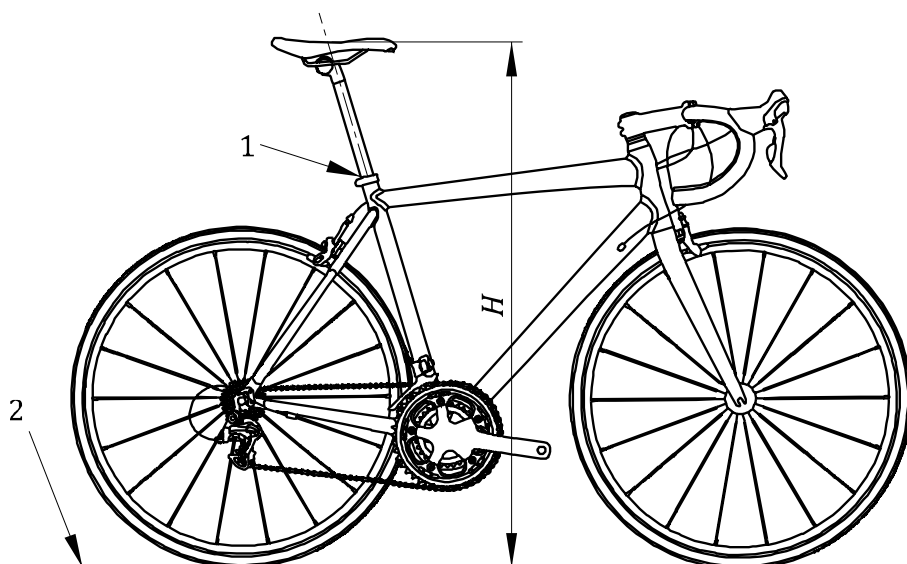
7 This part of ISO 4210 applies to young adult bicycles with maximum saddle height of 635 mm or more
8 and less than 750 mm, city and trekking bicycles, mountain bicycles, and racing bicycles that have a
9 maximum saddle height of 635 mm or more including folding bicycles (see Table 1 and Figure 1).

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

13 NOTE For bicycles with a maximum saddle height of 435 mm or less, see ISO 8124-1^[1] and with a maximum saddle
14 height of more than 435 mm and less than 635 mm, see ISO 8098^[2].

15
16 **Table 1 — Maximum saddle height**
17 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



18

19 **Key**

- H maximum saddle height
1 minimum insertion-depth mark
2 ground plane

20

Figure 1 — Maximum saddle height

ISO/DIS 4210-2:2021(E)**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Cycles — Safety requirements for bicycles — Part 1: Terms and definitions*

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

ISO 4210-4, *Cycles — Safety requirements for bicycles — Part 4: Braking test methods*

ISO 4210-5, *Cycles — Safety requirements for bicycles — Part 5: Steering test methods*

ISO 4210-6, *Cycles — Safety requirements for bicycles — Part 6: Frame and fork test methods*

ISO 4210-7, *Cycles — Safety requirements for bicycles — Part 7: Wheels and rims test methods*

ISO 4210-8, *Cycles — Safety requirements for bicycles — Part 8: Pedal and drive system test methods*

ISO 4210-9, *Cycles — Safety requirements for bicycles — Part 9: Saddles and seat-post test methods*

ISO 5775-1, *Bicycle tyres and rims — Part 1: Tyre designations and dimensions*

ISO 5775-2, *Bicycle tyres and rims — Part 2: Rims*

ISO 6742-1, *Cycles — Lighting and retro-reflective devices — Part 1: Lighting and light signalling devices*

ISO 6742-2, *Cycles — Lighting and retro-reflective devices — Part 2: Retro-reflective devices*

ISO 6742-3, *Cycles — Lighting and retro-reflective devices — Part 3: Installation and use of lighting and retro-reflective devices*

ISO 6742-4, *Cycles — Lighting and retro-reflective devices — Part 4: Lighting systems powered by the cycle's movements*

ISO 6742-5, *Cycles — Lighting and retro-reflective devices — Part 5: Lighting systems not powered by the cycle's movements*

ISO 9633, *Cycle chains — Characteristics and test methods*

ISO 11243, *Cycles — Luggage carriers for bicycles — Requirements and test methods*

ISO 14878, *Cycles — Audible warning devices — Technical specification and test methods*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

4 Requirements**4.1 Toxicity**

Any items which come into intimate contact with the rider (i.e. causing any hazard due to sucking or licking) shall comply with any national regulations specific to children's products.

55 4.2 Sharp edges

56 Exposed edges that could come into contact with the rider's hands, legs, etc., during normal riding or
57 normal handling and normal maintenance shall not be sharp, e.g. deburred, broken, rolled, or processed
58 with comparable techniques.

59 NOTE Refer to ISO 13715:2000^[3].

60 4.3 Security and strength of safety-related fasteners

61 4.3.1 Security of screws

62 Any screws used in the assembly of suspension systems, brackets attached to electric generators, brake
63 mechanisms and mudguards to the frame or fork shall be provided with suitable locking devices, e.g. lock-
64 washers, lock-nuts, thread locking compound, or stiff nuts. Fasteners used to assemble hub and disc
65 brakes should have heat-resistant locking devices.

66 NOTE 1 The screws used to attach the hub generator are not included.

67 NOTE 2 For example, mechanical and physical properties of bolts are specified in ISO 898-1^[4].

68 4.3.2 Minimum failure torque

69 The minimum failure torque of bolted joints for the fastening of handle bars, handlebar stems, bar ends,
70 saddle and seat-posts shall be at least 20 % greater than the manufacturer's maximum recommended
71 tightening torque.

72 4.3.3 Folding bicycle mechanism

73 If folding bicycle mechanism is provided, it shall be designed so that the bicycle can be locked for use in
74 a simple, stable, safe way, and when folded, no damage shall occur to any cables. No locking mechanism
75 shall contact the wheels or tyres during riding, and it shall be impossible to unintentionally loosen or
76 unlock the folding mechanisms during riding.

77 4.4 Crack detection methods

78 Standardized methods should be used to emphasize the presence of cracks where visible cracks are
79 specified as criteria of failure in tests specified in this part of ISO 4210.

80 NOTE For example, suitable dye-penetrant methods are specified in ISO 3452-1^[5], ISO 3452-2^[6], ISO 3452-3^[7],
81 and ISO 3452-4^[8]. In addition, white paint or surface treatment can be used to aid in detection for composite
82 materials.

83 4.5 Protrusions

84 This requirement is intended to address the hazards associated with the users of bicycles falling on
85 projections or rigid components (e.g. handlebars, levers) on a bicycle, possibly causing internal injury or
86 skin puncture.

87 Tubes and rigid components in the form of projections which constitute a puncture hazard to the user
88 should be protected. The size and shape of the end protection has not been stipulated, but an adequate
89 shape shall be given to avoid puncturing of the body. Screw threads which constitute a puncture hazard
90 shall be limited to a protrusion length of one major diameter of the screw beyond the internally threaded
91 mating part.

92 NOTE Handlebar ends are covered in 4.7.2.

93 4.6 Brakes

94 4.6.1 Braking systems

95 A bicycle shall be equipped with at least two independently actuated braking systems. At least one shall
96 operate on the front wheel and one on the rear wheel. The braking systems shall operate without binding
97 and shall be capable of meeting the braking performance requirements of 4.6.8.

98 Brake blocks containing asbestos shall not be permitted.