SLOVENSKI STANDARD
oSIST prEN ISO 4210-2:2022

01-januar-2022

Kolesa - Varnostne zahteve za kolesa - 2. del: Zahteve za mestna in treking 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)

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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43.150	Kolesa	Cycles
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

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Contents

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.

This third edition cancels and replaces the second edition (ISO 4210-2:2015), which has been technically revised.

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

— xxx xxxxxxx xxx xxxx

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.

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

1 Scope

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

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

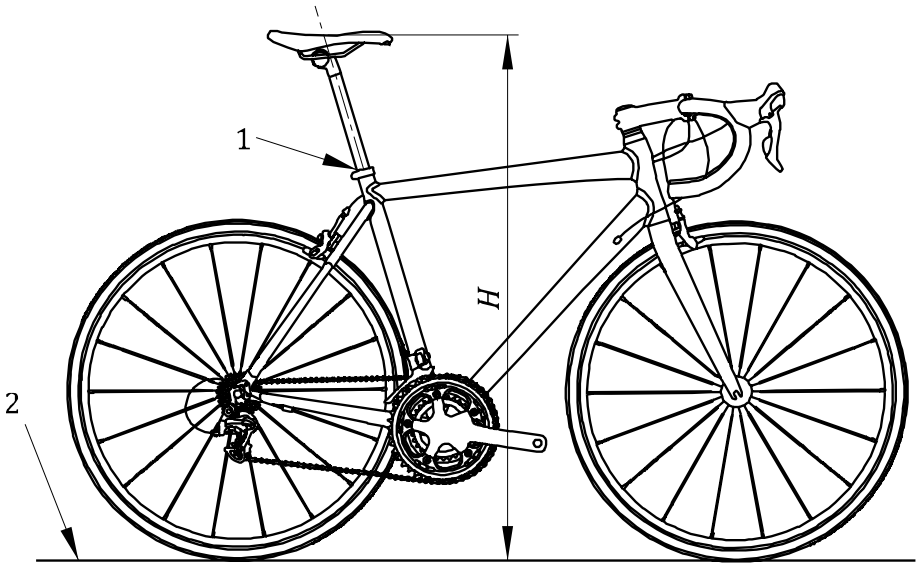
This part of ISO 4210 does not apply to specialized types of bicycle, such as delivery bicycles, recumbent bicycles, tandems, BMX bicycles, and bicycles designed and equipped for use in severe applications such as sanctioned competition events, stunting, or aerobatic manoeuvres.

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

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



Key

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

Figure 1 — Maximum saddle height

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.

4.2 Sharp edges

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

NOTE Refer to ISO 13715:2000[3].

4.3 Security and strength of safety-related fasteners

4.3.1 Security of screws

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

NOTE 1 The screws used to attach the hub generator are not included.
NOTE 2 For example, mechanical and physical properties of bolts are specified in ISO 898-1[4].

4.3.2 Minimum failure torque

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

4.3.3 Folding bicycle mechanism

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

4.4 Crack detection methods

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

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

4.5 Protrusions

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

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

NOTE Handlebar ends are covered in 4.7.2.

4.6 Brakes

4.6.1 Braking systems

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

Brake blocks containing asbestos shall not be permitted.