



SLOVENSKI STANDARD
SIST EN 14764:2006
01-september-2006

Mestna in trekking kolesa – Varnostne zahteve in preskusne metode

City and trekking bicycles - Safety requirements and test methods

City- und Trekking-Fahrräder - Sicherheitstechnische Anforderungen und Prüfverfahren

Bicyclettes de ville et tout chemin (trekking) - Exigences de sécurité et méthodes d'essai

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Ta slovenski standard je istoveten z: EN 14764:2005

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ICS 43.150

English Version

City and trekking bicycles - Safety requirements and test methods

City- und Trekking-Fahrräder - Sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 28 October 2005.

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Foreword

This European Standard (EN 14764:2005) has been prepared by Technical Committee CEN/TC 333 “Cycles”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

This European Standard is completely new and is one of a series being produced to cover all types of bicycle:

Standards in this series are:

EN 14764	<i>City and trekking bicycles - Safety requirements and test methods</i>
TC 333 WI 00333002	<i>Cycles - Vocabulary - Terminology (ISO 8090:1990 Modified)</i>
EN 14765	<i>Bicycles for young children - Safety requirements and test methods</i>
EN 14766	<i>Mountain bicycles – Safety requirements and test methods</i>
EN 14781	<i>Racing bicycles - Safety requirements and test methods</i>
prEN 14872	<i>Bicycles - Accessories for bicycles - Luggage carriers</i>
prEN 15194	<i>Cycles - Electrically power assisted cycles - EPAC bicycle</i>

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard has been developed in response to demand throughout Europe, and the aim has been to ensure that bicycles manufactured in compliance with it 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 standardisation of components.

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

No requirements on lighting equipment, reflectors and warning devices are specified in this European Standard, due to the existence of several different national regulations applicable in the European Countries.

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1 Scope

This European Standard specifies safety and performance requirements for the design, assembly, and testing of bicycles and sub-assemblies intended for use on public roads, and lays down guide lines for instructions on the use and care of such bicycles.

This European Standard applies to bicycles that have a maximum saddle height of 635 mm or more and that are intended for use on public roads.

This standard does not apply to mountain bicycles and racing bicycles, tradesman's delivery bicycles, recumbent bicycles, tandems and bicycles designed and equipped for use in sanctioned competitive events.

NOTE For bicycles with a maximum saddle height of 435 mm see EN 71 and with a maximum saddle height of more than 435 mm and less than 635 mm see EN 14765.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 14872, *Bicycles - Accessories for bicycles - Luggage carriers*

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

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

ISO 7636, *Bells for bicycles and mopeds - Technical specifications*

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

3 Terms and definitions

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

3.1 cycle

any vehicle that has at least two wheels and is propelled solely or mainly by the muscular energy of the person on that vehicle, in particular by means of pedals

3.2 bicycle

two-wheeled cycle

3.3 delivery bicycle

bicycle designed for the primary purpose of carrying goods

3.4 tandem

bicycle with saddles for two or more riders, one behind the other

3.5 fully-assembled bicycle

bicycle fitted with all components necessary for its intended use

3.6

public road

any designated and adopted road, pavement, path or track on which a bicycle is legally permitted to travel and on most though not all such public roads, bicycles will share use with other forms of transport including motorised traffic

3.7

aerodynamic extension

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

3.8

suspension fork

front fork incorporating controlled, axial flexibility to reduce the transmission of road-shocks to the rider

3.9

suspension-frame

frame incorporating controlled, vertical flexibility to reduce the transmission of road-shocks to the rider

3.10

maximum saddle height

vertical distance from the ground to the top of the seat surface, measured with the seat in a horizontal position with the seat pillar set to the minimum insertion depth [EN 71]

3.11

braking distance

distance travelled by a bicycle between the commencement of braking (3.12) and the point at which the bicycle comes to rest

3.12

commencement of braking

point on the test track or test machine at which the brake actuating device operated directly by the riders hand or foot or by a test mechanism starts to move from its rest position, on the test track this point being determined by the first brake actuating device (front or rear) to operate

3.13

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

3.14

rim-brake

brake in which brake-shoes act on the rim of the wheel

3.15

hub-brake

brake which acts directly on the wheel-hub

3.16

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

3.17

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

3.18

pedal tread-surface

surface of a pedal that is presented to the underside of the foot

3.19**crank assembly**

for fatigue testing it consists of the two cranks, the pedal-spindle adaptors, the bottom-bracket spindle, and the first component of the drive system, e.g. the chain-wheel set

3.20**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

3.21**visible crack**

crack which results from a test where that crack is visible to the naked eye

3.22**fracture**

unintentional separation into two or more parts

3.23**wheel**

assembly or combination of hub, spokes or disc, and rim, but excluding the tyre

3.24**wheel-base**

distance between the axes of the front and rear wheels of an unladen bicycle

3.25**quick release device**

device to fix or release a part without a tool

3.26**maximum inflation pressure**

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

3.27**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

3.28**toe-clip**

device attached to the pedal to grip the toe end of the rider's shoe but permitting withdrawal of the shoe

3.29**highest gear**

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

3.30**lowest gear**

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

4 Requirements and test methods

4.1 Brake tests and strength tests – Special requirements

4.1.1 Definition of brake tests

Brake tests to which accuracy requirements apply, as in 4.1.4, are those specified in subclauses 4.6.2.3 to 4.6.6.2. inclusive and 4.6.8.5.1.3 and 4.6.8.5.2.

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 subclauses 4.7 to 4.14 inclusive and 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 the 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.

NOTE 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%

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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.

4.3 Security and strength of safety-related fasteners

4.3.1 Security of screws

Any screws used in the assembly of suspension systems or screws used to attach generators, brake-mechanisms and mud-guards to the frame or fork or handlebar, and the saddle to the seat-pillar shall be provided with suitable locking devices, e. g., lock-washers, lock-nuts, or stiff nuts.

NOTE Fasteners used to assemble hub and disc brakes should have heat-resistant locking devices.

4.3.2 Minimum failure torque

The minimum failure torque of bolted joints for the fastening of handle bars, handlebar-stems, bar-ends, seats and seat-pillars shall be at least 50 % greater than the manufacturer's recommended tightening torque.

4.3.3 Folding bicycles

Folding bicycles shall meet all test requirements.

Folding mechanisms 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

Standardised methods should be used to emphasise the presence of cracks where visible cracks are specified as criteria of failure in tests specified in this standard.

NOTE For example, suitable dye-penetrant methods are specified in ISO 3452.

4.5 Protrusions

4.5.1 Requirement

4.5.1.1 Exposed protrusions

Any rigid exposed protrusion longer than 8 mm (see L in Figure 1) after assembly except

- a) the front gear-change mechanism at the chain-wheel;
- b) the gear-change mechanism at the rear wheel;
- c) the rim-brake mechanism at the front and rear wheels;
- d) a lamp-bracket fitted on the head-tube;
- e) reflectors;
- f) toe-clips and toe-straps;
- g) clipless attachment mechanism;
- h) chain-wheels and sprockets;
- i) water bottle cage;

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shall terminate in a radius, R (see Figure 1), of not less than 6,3 mm. Such protrusions shall have a major end dimension, A , not less than 12,7 mm and a minor dimension, B , not less than 3,2 mm.

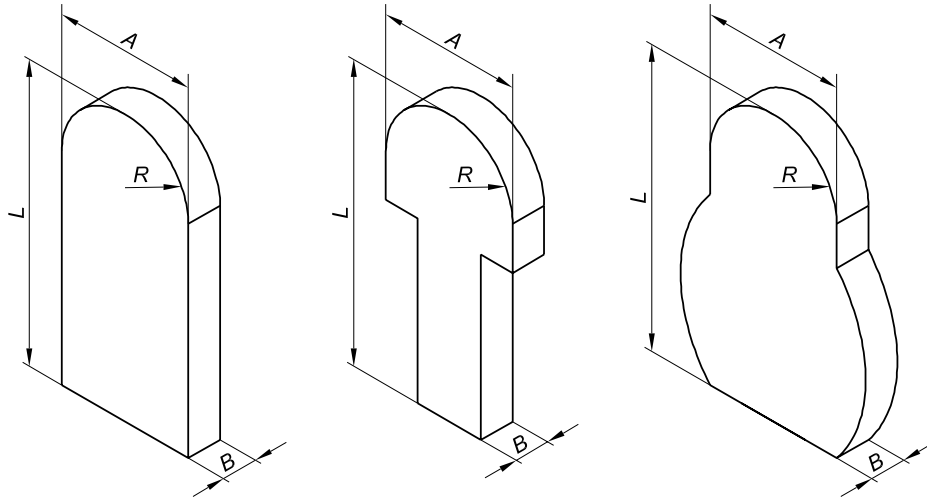
4.5.1.2 Exclusion zone, protective devices and screw threads

There shall be no protrusions on the top tube of a bicycle frame between the saddle and a point 300 mm forward of the saddle, with the exception that control cables no greater than 6,4 mm in diameter and cable clamps made from material no thicker than 4,8 mm may be attached to the top tube.

Foam pads attached to the bicycle frame to act as protective cushions are permitted, provided that the bicycle meets the requirements for protrusions when the pads are removed.

A screw thread that is an exposed protrusion shall be limited to a protrusion length of one major diameter of the screw beyond the internally threaded mating part.

Dimensions in millimetres



Key

$R \geq 6,3$

$A \geq 12,7$

$B \geq 3,2$

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Figure 1 — Examples of minimum dimensions of exposed protrusions

4.5.2 Test method

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Conduct the test with a protrusion test cylinder (which simulates a limb) having the dimensions shown in Figure 2.

Manoeuvre the test cylinder in all possible attitudes towards any rigid protrusion on the bicycle. If the central 75 mm long section of the cylinder contacts the protrusion, that protrusion shall be considered to be an exposed protrusion and it shall comply with 4.5.1.1.

Examples of protrusions that need and do not need to comply with the requirements are shown in Figure 3.

Dimensions in millimetres

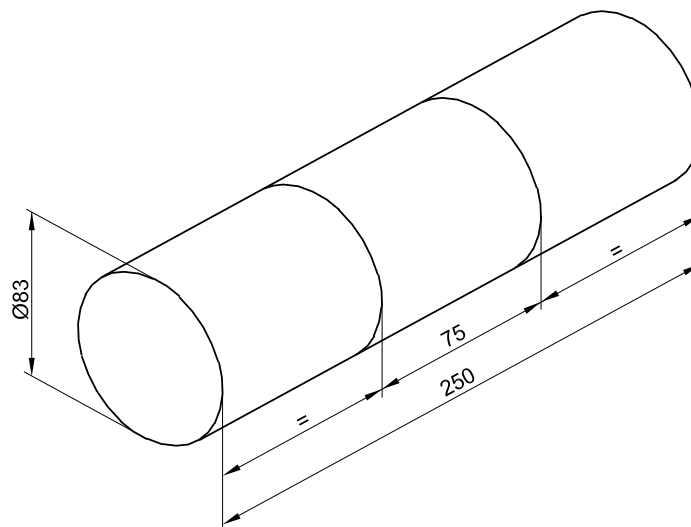
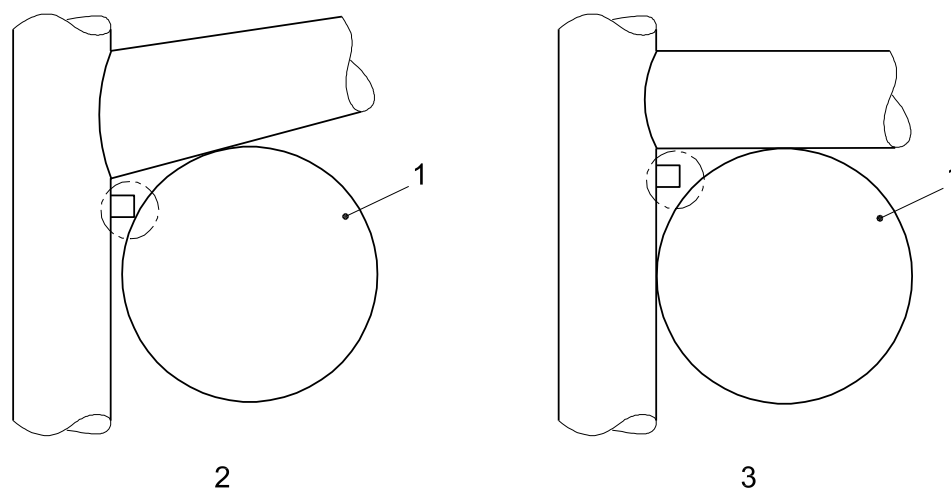


Figure 2 — Exposed protrusion test cylinder

**Key**

1 Test cylinder

2 Protrusion shall comply

3 Protrusion need not comply

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Figure 3 — Examples of protrusions

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4.6 Brakes

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4.6.1 Braking-systems

A bicycle shall be equipped with at least two independent 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.

4.6.2 Hand-operated brakes**4.6.2.1 Brake-lever position**

The hand-brake levers for front and rear brakes shall be positioned according to the legislation or custom and practice of the country in which the bicycle is to be sold, and the bicycle manufacturer shall state in the users instruction manual which levers operate the front and rear brakes (see also 5b)).

4.6.2.2 Brake-lever grip dimensions**4.6.2.2.1 Requirement**

The maximum grip dimension, d , measured between the outer surfaces of the brake-lever in the region intended for contact with the rider's fingers and the handlebar or any other covering present shall over a distance of not less than 40 mm as shown in Figure 4, conform to the following:

- on bicycles on which the minimum intended height of the saddle is 635 mm or more, d shall not exceed 90 mm;