

SLOVENSKI STANDARD
oSIST prEN 14619:2018
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Oprema za športe na kolesčkih - Skiroji - Varnostne zahteve in preskusne metode

Roller sports equipment - Kick scooters - Safety requirements and test methods

Rollsportgeräte - Kick-Scooter - Sicherheitstechnische Anforderungen und Prüfverfahren

Équipement de sports à roulettes - Trottinettes - Exigences de sécurité et méthodes d'essais

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ICS:

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

Roller sports equipment - Kick scooters - Safety requirements and test methods

Équipement de sports à roulettes - Trotinettes -
Exigences de sécurité et méthodes d'essais

Rollsportgeräte - Kick-Scooter - Sicherheitstechnische
Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 136.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Construction.....	5
4.1 General.....	5
4.2 Classification of kick scooters	6
4.2.1 Class A.....	6
4.2.2 Class B.....	6
4.3 Requirements.....	6
4.3.1 Protruding components and edges.....	6
4.3.2 Parts moving against each other	6
4.3.3 Steering system.....	7
4.3.4 Deck.....	7
4.3.5 Bearings.....	7
4.3.6 Axles.....	8
4.3.7 Wheels.....	8
4.3.8 Self-locking fixings.....	8
4.3.9 Mechanism to reduce the speed.....	8
4.3.10 Strength	8
5 Test methods	8
5.1 General.....	8
5.2 Order of tests	9
5.2.1 Specimen A	9
5.2.2 Specimen B	9
5.3 Wheel adhesion test.....	9
5.4 Handlebar ends impact test	10
5.5 Static load test	10
5.5.1 Deck.....	10
5.5.2 Steering column.....	10
5.6 Drop test.....	12
5.7 Impact against front wheel.....	12
5.8 Endurance test	12
5.9 External finish	14
6 Marking.....	14
6.1 On the kick scooter.....	14
6.2 On the package	15
7 Information supplied by the manufacturer.....	15
7.1 General.....	15
7.2 Instructions for use	15
7.3 Servicing and maintenance instructions	16
Annex A (informative) Environmental aspects	17
Bibliography.....	21

European foreword

This document (prEN 14619:2018) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14619:2015.

In relation to EN 14619:2015 the following main amendments have been made:

- a) 4.2.2 has been updated;
- b) 4.3.3 has been updated;
- c) the handle bar impact test (5.4) has been added to the order of tests in 5.2.1;
- d) Figure 6 and the references in the text have been deleted.

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SIST EN 14619:2019

<https://standards.iteh.ai/catalog/standards/sist/036cb82d-49b4-43d2-8b49-25f9822f21a3/sist-en-14619-2019>

1 Scope

This document applies to kick scooters which can only be propelled by the muscular activity of a user with a body mass of more than 20 kg and less than 100 kg.

It specifies safety requirements, test methods, marking and information supplied by the manufacturer to reduce the risk of injuries to both third parties and the user during intended use.

Kick scooters for use by users of less than 20 kg do not belong to the scope of this document. They are toys.

It should be noted that there are two types of scooters for the weight group 20 kg to 50 kg – those classified as sports equipment for use on public roads and path ways (this European Standard) and those classified as toys for domestic use (according to EN 71-1).

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.

EN 71-1:2014, *Safety of toys - Part 1: Mechanical and physical properties*

EN 22768-1, *General tolerances - Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1)*

3 Terms and definitions

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

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

kick scooter

ride-on equipment comprising at least one deck, at least two wheels of any size, a vertical element to grasp and a mechanism for steering, intended for flat, clean and dry surfaces

3.2

sliding mechanism

sliding components that can be used to vary the height of the steering column or the length of the deck

4 Construction

4.1 General

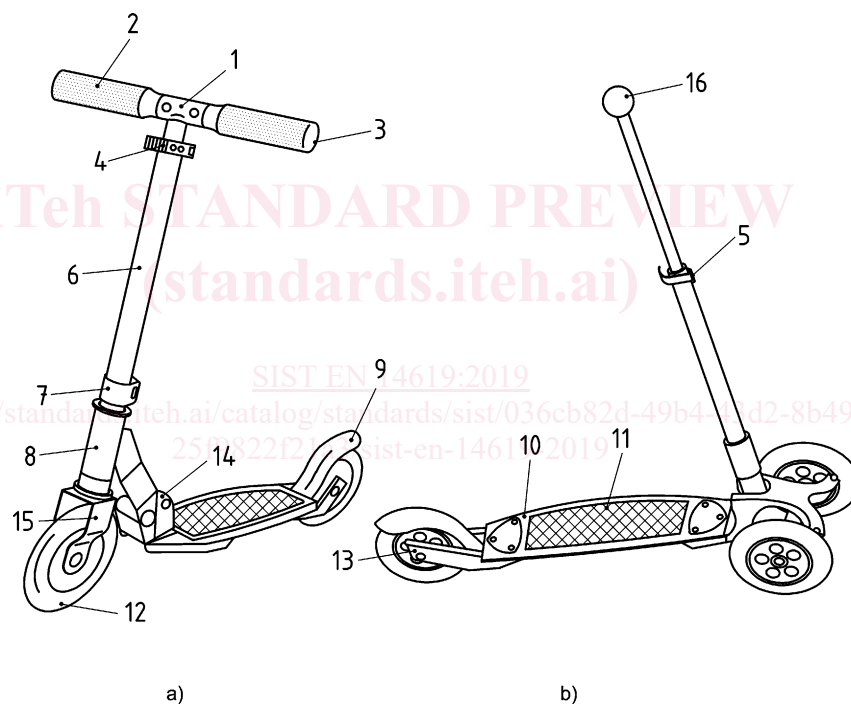
General tolerances: EN 22768-1 — v

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

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

Typical components of kick scooters are illustrated in Figure 1.

NOTE 1 Figure 1 shows only examples for reference.



Key

- | | |
|-------------------|-------------------------|
| 1 handlebar | 9 brake |
| 2 hand grip | 10 deck |
| 3 plug | 11 deck grip |
| 4 clamp | 12 wheel |
| 5 clamp | 13 axle |
| 6 steering column | 14 folding mechanism |
| 7 clamp | 15 wheel support system |
| 8 head tube | 16 joy stick |
| a) Example 1 | |
| b) Example 2 | |

Figure 1 — Typical components of kick scooters

prEN 14619:2018 (E)

NOTE 2 Restrictions on the marketing and use of certain dangerous substances and preparations are addressed in the Regulation (EC) No. 1907/2006.

4.2 Classification of kick scooters**4.2.1 Class A**

Kick scooters intended for use by a user mass of more than 20 kg up to 100 kg.

4.2.2 Class B

Kick scooters intended for use by a user mass of more than 20 kg up to 50 kg. The maximum height of the scooter (handle bar including hand grips or the joy stick) is 80 cm, measured from the ground to the highest point.

4.3 Requirements**4.3.1 Protruding components and edges**

All protruding components and edges on the kick scooter that can come into contact with body parts during intended use shall be deburred or constructed in such a way as to prevent injury. The test shall be carried out according to 5.9.

Rigid and protruding parts that can cause entrapment or injuries shall be protected. This protection shall not come loose during tests performed according to Clause 5.

The ends of the handles shall be covered. To prevent from injuries, ends of handlebar have to withstand the test according to 5.4, Figure 3, and remain free of sharp edges.

4.3.2 Parts moving against each other**4.3.2.1 General**

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The requirements specified in 4.3.2.2 to 4.3.2.5 shall be tested according to 5.9.

4.3.2.2 Distance between the parts**4.3.2.2.1 General**

Below requirements do not have to be considered if the customer acts intentionally close to and directly on the component and hurts itself. Then the injury would be caused by its own strength and could be stopped by itself immediately.

4.3.2.2.2 Class A

The distance between accessible moveable parts shall be either smaller than 5 mm or wider than 18 mm in any position. This requirement does not apply to the wheels/spokes/wheel support system or the braking/rear brake system, if provided.

4.3.2.2.3 Class B

- a) The space between moving elements, capable of injuring fingers, shall also allow a 12 mm rod to be inserted if it allows a 5 mm rod to be inserted.
- b) Accessible openings in moving elements capable of shearing a finger shall not allow the insertion of a 5 mm rod.

This requirement does not apply to the wheels/spokes/wheel support system or the braking/rear brake system, if provided.

4.3.2.3 Folding mechanism

Any folding mechanism shall be designed to fix the kick scooter for use in a simple, rigid and safe way. It shall resist all tests without damage. Fixing components should not have contact with the front wheel in any position. An inadvertent unlocking of the mechanism shall be impossible.

If the distance as specified in 4.3.2.2 is not met, other designs to protect the user from unintentional injuries shall be provided.

4.3.2.4 Sliding mechanism others than the steering system

Sliding mechanisms shall be protected against unintentional opening or collapse during intended use.

4.3.2.5 Springs

Springs shall not be accessible if the gap between two consecutive spirals or turns allows a 5 mm diameter rod to be inserted on a 10 mm depth.

4.3.3 Steering system

The steering system shall be constructed:

- a) to avoid contact between wheels and other parts of the kick scooter during usual riding;
- b) that the length adjustment fixing avoids unintentional opening;

For class B, the height shall be adjustable with the use of a tool or have at least one main locking device and one secondary locking device of which at least one shall automatically be engaged when the height is adjusted.

- c) that the steering column, if it is sliding, shall be adjusted for height, and have a permanent mark that indicates the minimum insertion depth of the column if it is possible that the user can move the steering column above that indication without extra tooling; this mark shall be positioned at a distance equivalent to and not less than two and a half times the diameter of the column and shall not affect its strength;
- d) that the end of the handlebar is equipped with hand grips or plugs, which withstand a tensile load of 70 N in the loosening direction.

When tested according to Clause 5, there shall be no break or functional damage of the steering system.

4.3.4 Deck

The deck shall resist all tests specified in Clause 5 without any functional damage. It shall be equipped with an anti-slide surface with an area of at least 200 cm².

4.3.5 Bearings

The bearings shall be designed in such a way as to be functional after performing all the tests according to Clause 5. They shall be constructed in such a way as to permit servicing according to the information supplied by the manufacturer without impairment of their operational safety.

prEN 14619:2018 (E)**4.3.6 Axles**

The axles shall be attached and designed in such a way as to ensure that they cannot become loose, displaced or deformed during use. The wheels shall be secured on the axles against unintentional loosening. These requirements are considered to be fulfilled if the axles are not loosened, deformed or displaced to such an extent as to impair proper functioning, and the wheels have not become loose after the tests according to Clause 5.

4.3.7 Wheels

The wheels shall be constructed from non-slip material. This requirement is considered to be fulfilled if a coefficient of adhesion, μ_0 , of at least 0,30 is achieved in the test according to 5.3.

After the tests according to Clause 5, the wheels shall not show tearing. They shall not have further loosened or been deformed to the extent that there exists a risk of their becoming locked.

If a rear wheel and its axle differ from those at the front, they shall be tested according to 5.7 in an adapted way.

The diameter of the front wheel(s) on class B kick scooters shall be 120 mm or greater.

4.3.8 Self-locking fixings

Where self-locking nuts are used, the entire thread, including the locking section, shall be in contact with the bolt. Self-locking nuts and other self-locking fixings that are loosened several times for the purpose of modification or servicing shall be suitable for this purpose.

4.3.9 Mechanism to reduce the speed

If a kick scooter is equipped with a mechanism to reduce the speed, this mechanism shall continue to make contact with the surface to which it is intended and no fastening devices shall have loosened when tested according to Clause 5.

The mechanism shall effectively and smoothly reduce the speed without coming to an abrupt stop.

4.3.10 Strength

All functional parts after testing according to Clause 5 shall not collapse or fail to comply with the relevant requirements specified in this European Standard.

5 Test methods**5.1 General**

The kick scooter to be tested shall be assembled and adjusted according to the information supplied by the manufacturer.

Two test specimens (two kick scooters) of the same type shall be tested according to the order described in 5.2.

5.2 Order of tests

5.2.1 Specimen A

The specimen shall be subjected to the test in the following order:

- a) test of external finish (see 5.9);
- b) wheel adhesion test (see 5.3);
- c) handle bar impact test (see 5.4);
- d) endurance test (see 5.8).

5.2.2 Specimen B

The specimen shall be subjected to the test in the following order:

- a) static load test of the deck (see 5.5.1);
- b) static load test of the steering column (see 5.5.2);
- c) drop test (see 5.6);
- d) impact test against front wheel (see 5.7).

5.3 Wheel adhesion test

The wheel adhesion shall be tested by pulling a clean(ed) wheel along a steel plate with a fine brushed and degreased surface of arithmetical mean roughness R_a of 1,5 μm to 2,0 μm (see Figure 2).

A vertical force F_1 of 100 N shall be applied to the wheel which is moved along the steel plate perpendicular to the kick scooter's longitudinal axis and perpendicular to the surface brush direction by a horizontal force F_2 , applied at the height of the wheel's axis. The maximum force shall be recorded. The test shall be repeated 10 times and the mean value of F_2 shall be calculated. The test shall be carried out at a speed of approximately 1 mm/s.

The coefficient of adhesion shall be calculated according to Formula (1):

$$\mu_0 = \frac{F_2}{m_E \cdot g + F_1} \quad (1)$$

where

- μ_0 is the coefficient of adhesion;
- F_1 is the load applied to wheel, in N;
- F_2 is the adhesive force, in N;
- m_E is the mass of the wheel, in kg;
- g is the standard acceleration due to gravity ($g = 9,81 \text{ m/s}^2$).