SLOVENSKI STANDARD
oSIST prEN 17404:2019

01-september-2019

Kolesa - Kolesa z električnim pomožnim pogonom - Gorska kolesa EPAC

Cycles - Electrically power assisted cycles - EPAC Mountain bikes

Fahrräder - Elektromotorisch unterstützte Räder - EPAC Mountainbikes

Cycles - Cycles à assistance électrique - Bicyclettes tout terrain EPAC

Ta slovenski standard je istoveten z: **prEN 17404**

ICS:

43.120	Električna cestna vozila	Electric road vehicles
43.150	Kolesa	Cycles

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English Version

Cycles - Electrically power assisted cycles - EPAC Mountain bikes

Cycles - Cycles à assistance électrique - Bicyclettes tout terrain EPAC

Fahrräder - Elektromotorisch unterstützte Räder - EPAC Mountainbikes

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 333.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 17404:2019) has been prepared by Technical Committee CEN/TC 333 “Cycles”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Introduction

This European Standard gives requirements for EPAC Mountain bike.

This European Standard has been developed in response to demand throughout Europe. Its aim is to provide a standard for the assessment of electrically powered cycles of a type which are excluded from type approval by Regulation (EU) No 168/2013.

Due to the limitation of the voltage to 48 V d.c., there are no special requirements applicable to the EPAC in regard to protection against electrical hazards.

Following the completion of a risk analysis, the focus in this standard is on EPAC Mountain bike.

This document is a type C standard as stated in EN ISO 12100. The machinery concerned and the extent to which hazards, hazardous situations and hazardous events covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

In real life situation an EPAC Mountain bike can fall over to the side causing the battery holder to brake without damage to the battery case itself. While the standard contains a strength test for the battery an additional test is required for the situation described. This will be considered at the next revision. The battery holder need to withstand this realistic and typical situation. Risk assessment carried out by the manufacturer should identify suitable measures to deal with this situation until it can be dealt with in the standard.

1 Scope

For the purpose of this document EN 15194 is applicable except the addition as follows.

This document specifies specific requirements applicable to EPAC Mountain bike.

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 15194:2017, *Cycles — Electrically power assisted cycles — EPAC Bicycles*

EN ISO 4210-2:2015, *Cycles — Safety requirements for bicycles — Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles (ISO 4210-2:2015)*

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

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

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

EN ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100)*

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
EPAC Mountain bike
EPAC-MTB
electrically power assisted cycle designed for use off-road on rough terrain, on public roads and on public pathways equipped with a suitably strengthened frame and other components, and, typically, with wide-section tyres with coarse tread patterns and a wide range of transmission gears

4 Safety requirements and/or protective measures

4.1 General

EPAC-MTB shall be designed according to the principles of EN ISO 12100 for relevant but not significant hazards, which are not dealt with by this document. It includes evaluation of such risks for all relevant components.

Means shall be provided to the user to prevent an unauthorized use of the EPAC-MTB e.g. key, locks, electronic control device.

4.2 Electrical requirements

EN 15194:2017, 4.2 applies.

4.2.1 Electric circuit

EN 15194:2017, 4.2.1 applies.

4.2.2 Controls and symbols

EN 15194:2017, 4.2.2 applies.

4.2.3 Batteries

EN 15194:2017, 4.2.3 applies.

4.2.4 Battery charger

EN 15194:2017, 4.2.4 applies.

4.2.5 Electric cables and connections

EN 15194:2017, 4.2.5 applies.

4.2.6 Wiring

EN 15194:2017, 4.2.6 applies.

4.2.7 Power cables and conduits

EN 15194:2017, 4.2.7 applies.

4.2.8 External and internal electrical connections

EN 15194:2017, 4.2.8 applies.

4.2.9 Moisture resistance

EN 15194:2017, 4.2.9 applies.

4.2.10 Mechanical strength test

EN 15194:2017, 4.2.10 applies.

4.2.11 Maximum speed for which the electric motor gives assistance

EN 15194:2017, 4.2.11 applies.

4.2.12 Start-up assistance mode

EN 15194:2017, 4.2.12 applies.

4.2.13 Power management

EN 15194:2017, 4.2.13 applies.

4.2.14 Maximum power measurement – measurement at engine shaft

EN 15194:2017, 4.2.14 applies.

4.2.15 Electro Magnetic Compatibility

EN 15194:2017, 4.2.15 applies.

4.2.16 Failure mode

EN 15194:2017, 4.2.16 applies.

4.2.17 Anti-tampering measure

EN 15194:2017, 4.2.17 applies.

4.3 Mechanical requirements

4.3.1 General

EN 15194:2017, 4.3.1 applies.

4.3.2 Sharp edges

EN 15194:2017, 4.3.2 applies.

4.3.3 Security and strength of safety-related fasteners

EN 15194:2017, 4.3.3 applies.

4.3.4 Protrusions

EN 15194:2017, 4.3.4 applies.

4.3.5 Brakes

EN 15194:2017, 4.3.5 applies except Table 1 that is replaced by the following:

When tested in accordance with EN 15194:2017 4.3.5.9.5, the bicycle shall fulfil the requirements shown in Table 1.

Table 1 — Calculated braking performance value

Forces in N

Condition	Brake in use	Minimum braking performance value, B_p
Dry	Front only	425
	Rear only	280
Wet	Front only	220
	Rear only	140

4.3.6 Steering

EN ISO 4210-2:2015, 4.7 MTB applies except the following.

4.3.6.1 Steering assembly – Static strength and security tests

4.3.6.1.1 Handlebar and stem assembly – Lateral bending test

Table 2 — Force on handlebar

Force, F_2	1 000 N

4.3.6.1.2 Test method for Stage 1

F_3 of 1 600 N (same as EN ISO 4210-5 MTB)

4.3.6.1.3 Requirement for Stage 2

Force, F_4 2 600 N (same as EN ISO 4210-5 MTB)

4.3.6.1.4 Handlebar to handlebar-stem – Torsional security test

Table 3 — Torque on handlebar

Torque, T_1	80 Nm

4.3.6.1.5 Handlebar-stem to fork steerer – Torsional security test

Table 4 — Torque on handlebar stem

Torque, T_2	50 Nm

4.3.6.1.6 Bar-end to handlebar – Torsional security test

Table 5 — Forces on bar-end

Force, F_5	500 N

4.3.6.1.7 Handlebar and stem assembly – Fatigue test

Table 6 — Forces on handlebars and bar-ends

Stage 1	Force, F_6	270 N
Stage 2	Force, F_7	450 N

4.3.7 Frames

EN ISO 4210-2:2015, 4.8 MTB applies except the following.

4.3.7.1 Frame – Impact test (falling mass)

Drop height, h_1 360 mm (same as EN ISO 4210-6 MTB)

4.3.7.2 Frame and front fork assembly – Impact test (falling frame)

Same as EN ISO 4210-6 MTB

4.3.7.3 Frame – Fatigue test with pedalling forces

Table 7 — Forces on pedal spindle

Force, F_7	1 200 N