SLOVENSKI STANDARD
SIST EN 16029:2012

01-september-2012

Motorizirana vozila, na katerih se sedi, namenjena transportu oseb in ne za uporabo na javnih cestah - Enosledno dvokolesno motorizirano vozilo - Varnostne zahteve in preskusne metode

Ride-on, motorized vehicles intended for the transportation of persons and not intended for use on public roads - Single-track two-wheel motor vehicles - Safety requirements and test methods

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Motorisierte (ride-on) Fahrzeuge ohne Zulassung für den öffentlichen Straßenverkehr, bestimmt für den Transport von Personen und Gütern - Einspurige zweirädrige Kraftfahrzeuge - Sicherheitstechnische Anforderungen und Prüfverfahren

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Véhicules motorisés chevauchables destinés au transport des personnes et non destinés à un usage sur la voie publique - Exigences de sécurité - Véhicules motorisés à deux roues monotraces

Ta slovenski standard je istoveten z: **EN 16029:2012**

ICS:

43.140	Motorna kolesa in mopedi	Motor cycles and mopeds

SIST EN 16029:2012 **en,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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SIST EN 16029:2012

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 16029

June 2012

ICS 43.140

English Version

Ride-on, motorized vehicles intended for the transportation of persons and not intended for use on public roads - Single-track two-wheel motor vehicles - Safety requirements and test methods

Véhicules motorisés chevauchables destinés au transport des personnes et non destinés à un usage sur la voie publique - Véhicules motorisés à deux roues monotraces- Exigences de sécurité et méthodes d'essai

Motorisierte (ride-on) Fahrzeuge ohne Zulassung für den öffentlichen Straßenverkehr, bestimmt für den Transport von Personen und Gütern - Einspurige zweirädrige Kraftfahrzeuge - Sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 11 February 2012.

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Foreword

This document (EN 16029:2012) has been prepared by Technical Committee CEN/TC 354 “Ride-on, motorized vehicles intended for the transportation of persons and goods and not intended for use on public roads - Safety requirements”, the secretariat of which is held by AFNOR.

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 December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. CEN [and/or] CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate 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.

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

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Introduction

This European Standard has been prepared to be a harmonised standard to provide a means of conforming to the essential safety requirements of the Machinery Directive and associated EFTA regulations.

This standard covers single-track two-wheel motor vehicles not intended to be used on public roads. These vehicles are ridden by both adults and children.

Vehicles within the scope of this standard and intended to be used by children are specifically designed and manufactured for young users. Specific requirements are given in this standard for these vehicles.

This standard defines specific requirements for the marking of small vehicles intended for use only by adults which, because of their size, can be ridden by children.

The importance of providing vehicles which are safe when used by children is recognised. The safety of children is dependent on the design of the vehicle and the information provided with it. However, no matter how good the design and information is, safe use will always be reliant on suitable training, experience, maturity of the rider, assessment of ability and supervision by carers, especially for novice riders.

To reflect the importance of child safety, further research will be started immediately after publication of the standard to enable the standard to be revised as soon as additional design measures and guidance have been established.

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The structure of safety standards in the field of machinery is as follows:

a) Type-A standards (basis standards) give basic concepts, principles for design, and general aspects that can be applied to machinery.

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b) Type-B standards (generic safety standards) deal with one or more safety aspect(s) or one or more type(s) of safeguards that can be used across a wide range of machinery:

   1) type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);

   2) type-B2 standards on safeguards (e.g. two-hand controls, interlocking devices, pressure-sensitive devices, guards).

c) Type-C standards (machinery safety standards) deal with detailed safety requirements for a particular machine or group of machines.

This document is a type C standard as stated in EN ISO 12100.

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.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

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1 Scope

This European Standard specifies the safety requirements and the test methods for single-track two-wheel motor vehicles, driven by a rider sitting astride. This European Standard deals with all significant hazards, hazardous situations and events relevant to single-track two-wheel motor vehicles propelled by a spark ignited internal combustion engine (hereinafter referred to as "vehicles"), when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer.

The vehicles covered by this European Standard are not intended to be used on public roads.

The vehicles covered by this European Standard are intended only for the rider and not for passengers.

This European Standard does not cover vehicles propelled with gaseous fuels.

This European Standard specifies the appropriate measures to eliminate or reduce the risks arising from the significant hazards, hazardous situations and events (see Clause 4) during commissioning, operation and maintenance of the vehicles when carried out in accordance with the specifications as intended by the manufacturer.

This European Standard is not applicable to vehicles which are manufactured before the date of publication of this European Standard by CEN.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

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EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals*

EN ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744)*

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201)*

EN ISO 11102-2, *Reciprocating internal combustion engines — Handle starting equipment — Part 2: Method of testing the angle of disengagement (ISO 11102-2)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 14314, *Reciprocal internal combustion engines — Recoil starting equipment — General safety requirements (ISO 14314)*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 4249-1, *Motorcycle tyres and rims (Code-designated series) — Part 1: Tyres*

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ISO 5751-1, *Motorcycle tyres and rims (metric series) — Part 1: Design guides*

ISO 6054-1, *Motorcycle tyres and rims (Code-designated series) — Diameter codes 4 to 12 — Part 1: Tyres*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

3.1
mass in running order
unladen mass to which the mass of the following components is added:

— fuel: tank filled to at least 90% of the capacity stated by the manufacturer,

— additional equipment installed in or fitted to the vehicle by the manufacturer in addition to that needed for normal operation (tool kit, luggage carrier, windscreen, protective equipment, etc.)

3.2
technical permissible mass
sum of the mass of the vehicle in running order and the maximum payload (rider, cargo, etc.) as indicated by the manufacturer

3.3
seat
part of the vehicle that has been designed for the rider to sit on

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3.4
footrests
element provided on either side of the vehicle on which the rider places his feet when seated in the riding position

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3.5
mudguard
part above the wheels of a vehicle that prevents dirt or ejected objects from getting on the rider

3.6
exhaust system
combination of the exhaust pipe, the expansion box, the exhaust silencer and the catalytic converter (if any)

3.7
manual fuel shut-off
manual device designed to turn the fuel flow from the fuel tank on and off

3.8
steering system
set of connected items or devices which operate together to cause the vehicle to go in the direction required

3.9
manual starter
hand or foot operated device intended to initiate the operation of the engine

3.10
ignition system
system in a spark-ignited internal combustion engine that ignites the mixture by producing a spark

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3.11
stand
device intended to maintain the vehicle in its vertical (or almost vertical) parking position when left unattended by its rider

3.11.1
centre stand
stand which is part of the vehicle and when swung into the open position supports the vehicle by providing one or several areas of contact between the vehicle and the supporting surface either side of the median longitudinal plane of the vehicle

3.11.2
prop stand
stand which is part of the vehicle and when extended or swung into the open position, supports the vehicle on one side only, while leaving both wheels in contact with the supporting surface

3.11.3
external stand
stand which is not part of the vehicle

3.12
brake
parts of the braking system where the forces opposing the movement of the vehicle are developed

3.13
skin temperature
temperature measured at the inside of the protective equipment when the outside surface is in contact with a hot surface

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3.14
vehicle
within the meaning of this standard, single-track two-wheel motor vehicle, driven by a rider sitting astride and propelled by a spark ignited internal combustion engine with liquid fuel

Vehicles are divided into the following intended usage categories:

3.14.1
category 1 vehicle
vehicle that is intended for use by children having a minimum age of 6 years and under the permanent supervision of a carer

Vehicles in category 1 are subdivided into the following sub-categories:

3.14.1.1
category 1a vehicle
category 1 vehicle having a maximum cylinder capacity of 50 cc and a maximum performance of 4 kW and intended for use by novice riders

3.14.1.2
category 1b vehicle
category 1 vehicle having a maximum capacity of 125 cc and a maximum performance of 11 kW intended for use by trained and experienced riders

3.14.2
category 2 vehicle
vehicle intended for use by adults only

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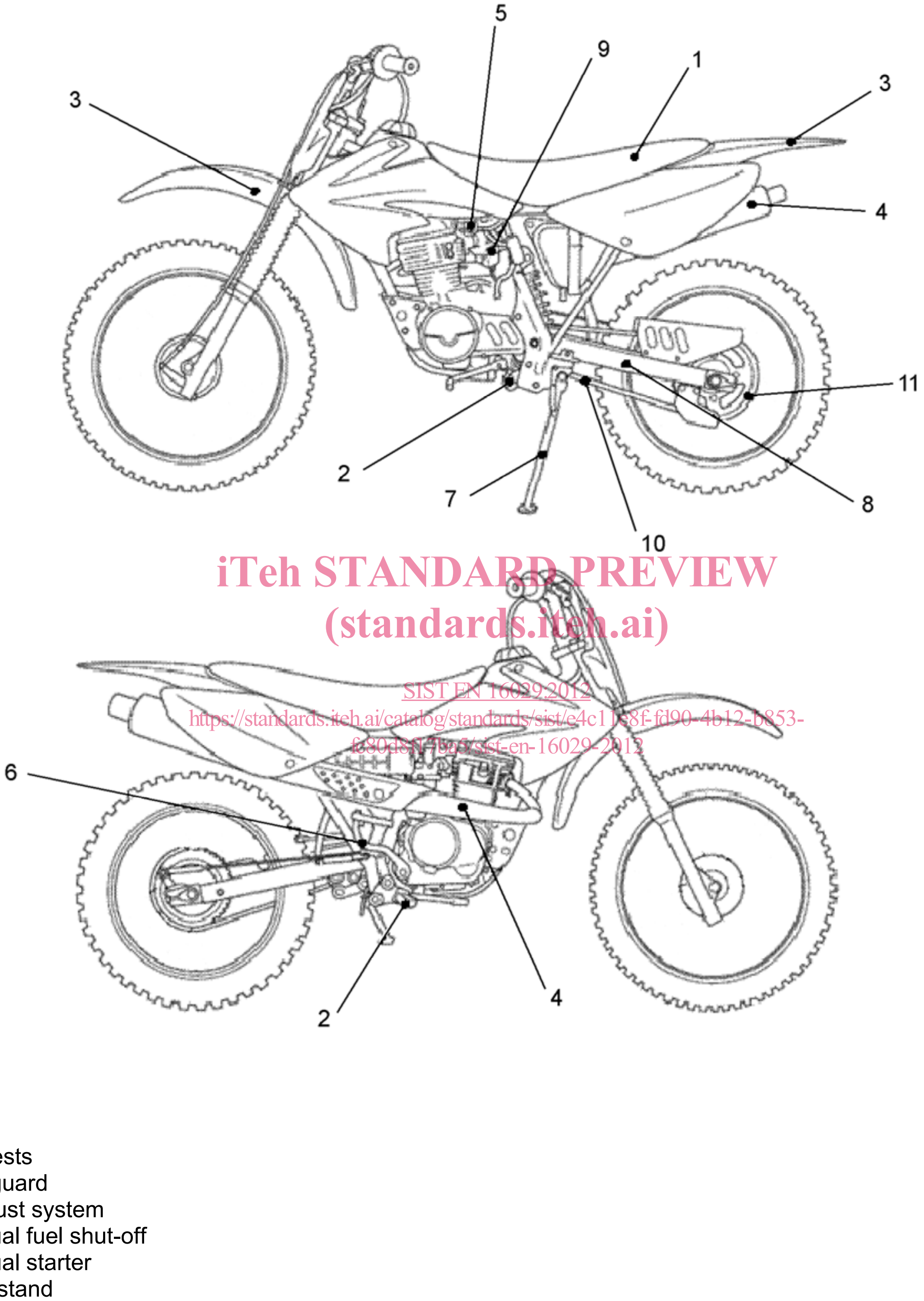
3.15
speed limiting device
device intended to limit the maximum speed of a vehicle (e.g. a mechanical device limiting throttle travel)



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Key

1 seat
2 footrests
3 mudguard
4 exhaust system
5 manual fuel shut-off
6 manual starter
7 prop stand
8 swingarm
9 choke control
10 chain
11 sprocket

Figure 1 — Illustration of some terms and definitions

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4 List of significant hazards

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for the single-track two-wheel motor vehicles and which require action to eliminate or reduce the risk.

Table 1 — List of significant hazards

No.	Hazard	Relevant clause of this document
1	**Mechanical hazards** due to:	
	- loss of stability	5.3;
	- contact with moving parts or cutting or severing by sharp edges and angles	5.5; 5.6
	- vehicle mobility	5.11.5; 5.11.6; 5.11.7; 5.11.8; 5.11.13; 5.11.14
2	**Electrical hazards** due to short-circuits	5.13
3	**Thermal hazards** resulting in burns due to the contact with hot surfaces	5.7
4	**Noise hazard** causing hearing loss, interferences with speech communication or with acoustic signals, physiological disorders	5.14
5	**Material/substance hazards** due to:	
	- breathing difficulties, suffocation, visibility problems or injuries caused by the contact with or inhalation of harmful fluids, gases, mists and fumes related with exhaust gases or battery fluids	5.8; 5.13
	- fire or explosion caused by leakages of the fuel circuit	5.12
6	**Ergonomic hazards** due to:	
	- unhealthy postures of excessive effort	5.10
	- inadequate design, location or identification of the indicators and control devices	5.11
7	**Hazards associated with environment in which the vehicle is used** due to the projection of dust and particles from the road surface against the rider	5.9
8	**Combination of hazards / Other** e.g.	
	- hazards due to the unexpected or not authorised start-up of the vehicle	5.2
	- hazards due to break-up during operation	5.4
	- hazards due to controls systems failure	5.11
	- hazards due to the vehicle unsafe use caused by incomplete instruction for operation and maintenance	7.3.2
	- hazards due to a lack of warning of residual risks	7.3.2.5

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5 Safety requirements and/or protective measures

5.1 General

The vehicles shall comply with the safety requirements and/or protective measures of this clause. In addition, the vehicle 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.

For hazards which are to be reduced by the application of a type B standard, the manufacturer shall carry out an adequate risk assessment, complementary to the guidance given in this document, for the requirements of the type B standard where choice is necessary or which have to be adapted to the specific situation.

5.2 Unintended or unauthorised starting/moving

Starting the vehicle shall require the intentional operation of a control. An interlock shall be provided to prevent the vehicle from being started by electric cranking unless the clutch is disengaged, the gearbox is in neutral or the brake is applied.

The vehicle shall be fitted with a device that prevents its unauthorised use, e.g. a key operated main switch, a padlock provided with the vehicle, a dedicated device whose removal inhibits the vehicle functioning.

Remote controls shall not be allowed.

5.3 Loss of stability

5.3.1 Static stability

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5.3.1.1 General

All vehicles shall be fitted with at least one stand in order to ensure stability when stationary (e.g. when parked) but not held in a static position by a person or external means. This stand shall be lateral, central or both.

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Swivelling stands shall fold rearwards in order to attain the closed or travelling position.

The verification of the strength of the stand shall be made by the test defined in 6.2.2.

5.3.1.2 Prop stands

The prop stands, if present, shall, when tested according to 6.2.3:

— be designed and constructed in such a way that they do not close automatically if the angle of lean is altered unexpectedly;

— be able to support the vehicle in such a way as to provide lateral stability, whether the vehicle is on a horizontal supporting surface or on a slope;

— be able to support the vehicle in such a way as to maintain stability when the vehicle is parked on a slope.

5.3.1.3 Centre stands

The centre stands, if present, shall, when tested according to 6.2.3, be able to support the vehicle with either one or both wheels in contact with the supporting surface or without any of the wheels being in contact with that surface in such a way as to confer stability on that vehicle:

— on a horizontal supporting surface;

— in a leaning position;

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— on a slope.

5.3.1.4 Folded position

All stands shall be provided with a retention system which holds them in the retracted or travelling position. That system may consist of either:

— a single device such as a spring or a clip (retention in the folded position shall be verified as defined in 6.2.1); or

— two independent devices such as two separate springs, or one spring and one clip.

5.3.2 Dynamic stability

5.3.2.1 General

To avoid any excessive movement of the vehicle when steering, there shall be stops on the handlebar to prevent over-steering. See also 5.11.14 for the requirements of the steering system.

The vehicle shall be so designed that the footrests are the first part to contact the ground in case of excessive banking.

This shall be verified in running order on a flat horizontal surface.

5.3.2.2 Tyres

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5.3.2.2.1 General requirements

The tyres fitted as original equipment shall be selected by the vehicle and tyre manufacturers taking into account the intended operations of the vehicle. When available, the range of approved rim widths and contours specified by the following international standards: ISO 5751-1 (for metric designated tyres), ISO 4249-1 (for code designated tyres with rim diameter code 13 inches and above) or ISO 6054-1 (for code designated tyres with rim diameter code 12 inches and below), shall be followed.

For tyres not specified by ISO standards, relevant industry standards, e.g. ETRTO, TRA, JATMA, shall be followed.

The owner's manual shall have sufficient information to allow the consumer to select the correct replacement tyres, with regard to dimensions, load capacity and speed, for the front and the rear tyres.

The tyres shall comply with the following requirements:

— The maximum load carrying capacity, certified by the tyre manufacturer, of every tyre with which the vehicle is fitted, shall be at least equal to the maximum permissible axle mass of the vehicle divided by the number of tyres equipping that axle.

— Every tyre with which the vehicle is fitted shall have a speed capability, certified by the tyre manufacturer, higher than the maximum design speed of the vehicle (inclusive of the variability due to series production).

— The tyre(s) made by the tyre manufacturer within the tolerances laid down in accordance with international standards, and/or as specified by the tyre manufacturer when international standards are not available, shall move freely in their intended position. If type D (special service) tyres are used, the vehicle manufacturers shall provide the necessary gap to conform to their specific maximum dimensions.

— The space in which the wheel revolves shall be such as to allow unrestricted movement when the larger permissible tyre size is used within the suspension, steering, frame and wheel guard constraints provided by the vehicle manufacturer.