



**NSAI**  
Standards

Irish Standard  
I.S. EN 16029:2012

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

## I.S. EN 16029:2012

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*

*This document is based on:*  
EN 16029:2012

*Published:*  
2 July, 2012

This document was published under the authority of the NSAI and comes into effect on:  
2 July, 2012

**ICS number:**

43.140

**NSAI**  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

**Sales:**  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

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.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

<b>Contents</b>	<b>Page</b>
Foreword.....	5
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 List of significant hazards .....	11
5 Safety requirements and/or protective measures .....	12
5.1 General.....	12
5.2 Unintended or unauthorised starting/moving .....	12
5.3 Loss of stability.....	12
5.3.1 Static stability.....	12
5.3.2 Dynamic stability .....	13
5.4 Risk of break-up during operation .....	14
5.4.1 General.....	14
5.4.2 Seat resistance test .....	14
5.4.3 Static test.....	14
5.4.4 Dynamic test.....	14
5.5 Moving parts.....	14
5.6 Sharp edges .....	15
5.6.1 Handlebars and handlebar levers .....	15
5.6.2 Footrests.....	15
5.6.3 Other items .....	15
5.7 Hot surfaces .....	16
5.7.1 General.....	16
5.7.2 Temperature limits for touchable surfaces.....	17
5.8 Emissions of hazardous materials and substances .....	17
5.9 Risks related to thrown objects .....	18
5.10 Ergonomics .....	18
5.11 Control devices and control systems.....	18
5.11.1 Engine ignition switch.....	18
5.11.2 Supplemental engine stop (quick-stop) control.....	19
5.11.3 Engine starter switch .....	20
5.11.4 Manual starters .....	20
5.11.5 Speed control.....	20
5.11.6 Brake control.....	21
5.11.7 Clutch control.....	23
5.11.8 Gear selector for vehicles with manually operated gearboxes .....	23
5.11.9 Audible warning device.....	23
5.11.10 Lighting and light-signalling controls .....	23
5.11.11 Cold starting device control .....	24
5.11.12 Manual fuel tank shut-off control (for carburettor-type engines only).....	24
5.11.13 Speed limiting device .....	25
5.11.14 Steering system .....	25
5.12 Fuel circuit.....	26
5.12.1 General.....	26
5.12.2 Fuel shut-off control (for carburettor-type engines only).....	26
5.12.3 Fuel tank .....	26
5.12.4 Fuel lines .....	27
5.12.5 Fuel hoses .....	27
5.13 Batteries.....	27

5.14	Noise .....	27
5.15	Vibration .....	27
6	Verification of the safety requirements and/or protective measures .....	27
6.1	General .....	27
6.2	Verification of the stability - Static stability .....	28
6.2.1	Verification of the folded position of stands .....	28
6.2.2	Stand strength (static test) .....	29
6.2.3	Verification of stand performance .....	29
6.3	Verification of break-up during operation .....	31
6.3.1	Seat resistance test .....	31
6.3.2	Static test .....	31
6.3.3	Dynamic test .....	32
6.4	Hot surfaces .....	33
6.4.1	Identification of contact zones .....	33
6.4.2	Temperature measurement procedure .....	41
6.5	Verification of control devices and control systems .....	42
6.5.1	Verification of manual starters .....	42
6.5.2	Braking performance .....	42
6.5.3	Maximum design speed and speed limiting device .....	44
6.5.4	Steering effort .....	47
6.6	Fuel tank .....	47
6.7	Verification of final assembly .....	47
7	Information for use .....	47
7.1	General .....	47
7.2	Warnings on the vehicle .....	48
7.2.1	General .....	48
7.2.2	Special markings .....	48
7.3	Accompanying documents (in particular the instructions handbook) .....	50
7.3.1	General .....	50
7.3.2	Contents of the instructions handbook .....	50
7.3.3	Pre-delivery certificate form .....	55
7.4	Marking .....	56
Annex A	(normative) Noise test .....	58
A.1	General .....	58
A.2	Operating and mounting conditions .....	58
A.3	Noise measurements .....	58
A.4	Test environment .....	59
A.5	Determination of A-weighted emission sound pressure level at rider's ear .....	59
A.5.1	Microphone position .....	59
A.5.2	Measurements .....	59
A.6	Determining if further measurements are necessary .....	59
A.7	Determining the time averaged A-weighted sound pressure levels .....	60
A.7.1	General .....	60
A.7.2	Size of the measurement surface .....	60
A.7.3	Microphone positions on the measurement surface of the hemisphere .....	60
A.7.4	Measurements .....	61
A.8	Determining the time averaged A-weighted sound power level using the time averaged A-weighted sound pressure levels over the measurement surface .....	61
A.8.1	Determination of the time averaged A-weighted measured sound pressure levels over the measurement surface .....	61
A.8.2	A-weighted sound power level calculation .....	61
A.9	Information to be recorded .....	62
A.9.1	Vehicle under test .....	62
A.9.2	Acoustic environment .....	62
A.9.3	Instrumentation .....	62
A.9.4	Acoustical data .....	62
A.10	Information to be reported .....	63
A.11	Declaration and verification of noise emission values .....	63

<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC .....</b>	<b>64</b>
<b>Bibliography .....</b>	<b>65</b>

## **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.

## 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.

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.
- 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.



## 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.

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

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*

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

#### 3.4 footrests

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

#### 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

### **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

### **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

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-