SLOVENSKI STANDARD
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Štirikolesniki (ATV - quad) - Varnostne zahteve in preskusne metode

All terrain vehicles - Safety requirements and test methods

All Terrain Vehicles (ATVs - quads) - Anforderungen und Prüfverfahren

Véhicules tout terrain (VTT - quads) - Exigences et méthodes d'essai

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All terrain vehicles - Safety requirements and test methods

Véhicules tout terrain (VTT - quads) - Exigences et méthodes d'essai

All Terrain Vehicles (ATVs - quads) - Anforderungen und Prüfverfahren

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

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Foreword

This document (prEN 15997:2009) 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 document is currently submitted to the CEN Enquiry.

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 2006/42/EC.

For relationship with EU Directive 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

Introduction

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 are 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.

1 Scope

This European Standard applies to “All Terrain Vehicles” or “ATVs” as defined in Clause 3 propelled by internal combustion engines using liquid fuels (petrol, diesel, …) not intended to be used on public roads[1)].

This European Standard is not dealing with :

— ATVs exclusively intended for competition[2)];

— agricultural and forestry tractors coming under the Directive 2003/37/EC;

— accessories for additional functions (towing hook and load carrying provisions remaining within the vertical projection onto the ground of the vehicle are not considered as accessories);

— the additional hazards due to the use of the ATV on public roads;

— the additional hazards due to the use of remote control.

This European Standard deals with all significant hazards, hazardous situations and events relevant to ATVs, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). It deals with the significant hazards during the whole lifecycle of the product as defined in 5.3 of EN ISO 12100-1:2003.

This European Standard is not applicable to ATVs which are manufactured before the date of its publication as EN.

2 Normative references

The following referenced documents are indispensable for the application 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 614-1:2006, *Safety of machinery —- Ergonomic design principles — Part 1 : Terminology and general principles*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals*

EN IS0 3744, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*

EN ISO 11688-1:1998, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100-1:2003, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

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1) In general vehicles intended for use on public roads have to fulfil specific requirements and require official “type-approval”.

2) The main criterion to be applied to judge whether vehicles are to be considered as exclusively intended for competition is whether they are designed according to the technical specifications laid down by one of the officially recognised racing associations.

EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

ISO/DIS 29802, *All terrain (AT) tyres and rims - Symbol marked pneumatic tyres on 5 degrees tapered rims - Designation, dimension, marking and load ratings*

CEN/TR 15172-1:2005, *Whole-body vibration — Guidelines for vibration hazards reduction — Part 1: Engineering methods by design of machinery*

CR 1030-1:1995, *Hand-arm vibration — Guidelines for vibration hazards reduction — Part 1 : Engineering methods by design of machinery*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

3.1
all-terrain vehicle (ATV)
motorised vehicle, propelled by an internal combustion engine, intended primarily to travel on unpaved surfaces on four low-pressure tyres, having a seat designed to be straddled by the operator and handlebars for steering

ATVs are subdivided into two types as designated by the manufacturer.

3.1.1
ATV Type I
ATV intended for use by a single operator and no passenger

Type I ATVs are further identified by four intended usage categories as follows:

3.1.1.1
ATV Type I category G (General Use Model)
ATV Type I intended for recreational and/or utility use by an operator age 16 or older

3.1.1.2
ATV Type I category S (Sport Model)
ATV Type I intended for recreational use by an experienced operator, age 16 or older

3.1.1.3
ATV Type I category Y (Youth Model)
ATV Type I of appropriate size intended for recreational use under adult supervision by an operator under age 16

Youth model ATVs can further be categorized as follows:

3.1.1.3.1
category Y6+
intended for use by children age 6 or older

3.1.1.3.2
category Y10+
intended for use by children age 10 or older

3.1.1.3.3
category Y12+
intended for use by children age 12 or older.

3.1.1.4
ATV Type I category T (Transition Model)
ATV of appropriate size having speed limiter provision that is intended for recreational use by an operator age 14 or older under adult supervision, or by an operator age 16 or older

3.1.2
ATV Type II
ATV with provisions for the operator and one passenger

NOTE An ATV Type II is equipped with a designated seating position behind the operator designed to be straddled by no more than one passenger.

Type II ATVs are limited to one intended usage category as follows:

3.1.2.1
ATV Type II category G (General Use Model)
ATV Type II intended for recreational and/or utility use by an operator age 16 or older with provision for one passenger

3.2
brake lever or handle
hand-operated control which, when activated, causes the brake(s) to be applied

3.3
brake pedal
foot-operated control which, when activated, causes the brake(s) to be applied

3.4
clutch lever
manual control that engages and disengages the clutch manually

3.5
engine stop switch
device used to stop engine operation

3.6
gearshift control
control for selecting among a number of sets of transmission gears

3.7
handlebar
device used for steering and rider support and as a place to mount hand-operated controls

3.8
manual fuel shutoff control
manual device designed to turn the fuel flow from the fuel tank on and off

3.9
neutral indicator
light or other means of indicating when a ATV transmission is in the neutral position

3.10
throttle control
control which is located on the handlebar and which is used to control engine power

3.11
cargo area
rack(s) or other designated area(s) intended by the manufacturer to carry cargo on the ATV

3.12
tongue weight
vertical weight on towing device point

3.13
towing device
device used for the attachment of a trailer or other equipment

3.14
vehicle curb weight
total weight of an ATV, including a full load of fuel, oil, and water, but without any operator, passenger (if applicable), accessories, or cargo

3.15
vehicle load capacity (maximum weight capacity)
highest load recommended in the instructions handbook to be carried by an ATV in its “as manufactured” condition

NOTE This vehicle load capacity includes the weight of operator, passenger (if applicable), cargo, accessories, and trailer tongue weight (if applicable), but not the vehicle curb weight.

3.16
wheelbase (L)
longitudinal distance from the centre of the front axle to the centre of the rear axle

3.17
wheel travel
displacement of a reference point on the suspension (such as the wheel axle) from when the suspension is fully extended (no force applied) to when it is fully compressed

3.18
brake stopping distance (S)
distance travelled by a ATV from the start of a brake application to the point which the ATV reaches a complete stop

3.19
braking deceleration
rate of change of vehicle speed from the point of initial brake application to the point where the vehicle stops

3.20
manual clutch
device activated by the operator to disengage the engine from the gearbox

3.21
mechanical suspension
system which permits vertical motion of a ATV wheel to the chassis and provides spring and damping forces

3.22
neutral
designated transmission position where there is no continuity or direct mechanical connection between transmission input and output

3.23
parking brake
brake system which, after actuation, holds one or more brakes continuously in an applied position without further action

3.24
parking mechanism
drive train system that locks the drive train when the transmission control is placed in a designated park position

3.25
service brake
primary brake system used for slowing and stopping a vehicle

NOTE ATVs may have more than one service brake.

3.26
speed limiting device
device intended to limit the maximum speed of a vehicle

3.27
low pressure tyre
tyre with reference inflation pressure as mentioned in the ISO/DIS 29802

3.28
braking device
device consisting of the control, the transmission and the brake proper whose function is progressively to reduce the speed of a moving vehicle or to bring it to a halt, or to keep it stationary if it is already halted

3.29
electric starter interlock
device that prevents the ATV engine from being started by electric cranking under certain conditions

3.30
flag pole
long, thin, semi-rigid, vertical pole with a brightly coloured pennant, usually red or orange, on the top end which attaches at the rear of the ATV

3.31
footrest
structural support for the operator's and/or passenger’s feet. Footrests include footpegs and footboards

3.32
handlebar crossbar
rigid member attached to and connecting the left and right sides of the handlebar

3.33
ignition system
system in an spark-ignited internal combustion engine that ignites the mixture by producing a spark

3.34
instructions handbook
publication, supplied by the manufacturer as part of the ATV, which provides information and instruction regarding use, operation, care, and maintenance of the ATV

3.35
passenger handhold
device grasped by the passenger to provide support and help maintain the passenger’s balance while riding

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 this type of machinery and which require action to eliminate or reduce the risk.

Table 1 — List of significant hazards

Clauses/ Sub clauses	Danger zone or source of hazard	Type of hazard	Fig/subfigure	Relevant clause of this standard
4.1	**Mechanical hazards**			
4.1.1	Acceleration deceleration Quick acceleration or deceleration of the ATV may lead to loss of control by the operator and the operator being ejected from the machine	Being thrown		5.2.1, 5.2.2
4.1.2	Approach of a moving element to a fixed part			
	Hands or parts thereof may be trapped between steering handle and tank	— Crushing		5.2.3
	Wheels or other parts of the transmission could trap hands or feet	— Cutting/crushing/drawing in		5.2.4
	Feet being trapped under rotating wheels is one of the major hazards on ATVS	— Entanglement/drawing in		5.2.4, 5.2.6
4.1.3	Mobility Unless ATVs are fitted with adequate steering, suspension, seating and transmission controls, the operator will not have full control over the vehicle	Being thrown		5.2.8, 5.2.9, 5.2.10, 5.2.11, 5.2.12, 5.2.13? 5.2.14
4.1.4	Rotating elements			
	Feet being trapped under rotating wheels is one of the major hazards on ATVs	— Cutting/crushing/drawing in		5.2.4
		— Entanglement/drawing in		5.2.4, 5.2.6
4.1.5	Rough slippery surface	Slipping and falling		5.2.15, 5.2.16
4.1.6	Sharp edges			
	Sharp parts on the handlebar could cut the user when he operates the machine	Cutting or severing (handlebar)		5.2.5
		Cutting or severing (other parts)		

"To be continued"

Table 1 (*continued*)

Clauses/ Sub clauses	Danger zone or source of hazard	Type of hazard	Fig/subfigure	Relevant clause of this standard
4.1.7	Stability Stability is compromised when tyres are underinflated (tyres separating from rims) or overinflated (cannot adapt to the terrain)	Being thrown, crushing		5.2.18
4.2	**Electrical hazards**			
4.2.1	Arc Risk of direct/indirect electric contact	Electric shock		5.3.1, 5.3.3
4.2.2	Live parts Contact with high tension parts (ignition system) may lead to shocks	Shock		5.3.1
4.2.3	Overload Circuit overload may lead to warming up of the wires, melting of the insulation and even to fire	Fire		5.3.1 5.3.2
4.2.4	Short circuit Contact between live parts and the ground (frame) will lead to short circuit	Fire/shock		5.3.1 5.3.2 5.3.4
4.3	**Thermal hazard**			
4.3.1	Flame Leaking fuel could catch fire when ignition sources are present	Burn		5.2.7.2
4.3.2	Objects or materials with a high or low temperature It is possible that hot parts lead to burns when the user accidentally touches them Users can come into contact during the use of the machine	Burn		5.4
	getting on and off the machine			
4.4	**Noise**			
	Exhausting system The machine could create excessive noise due to intake and exhaust silencing systems	Discomfort, permanent hearing loss		5.5
4.5	**Vibration hazards**			
	Exhausting system The machine could create excessive vibration due to engine and transmission suspension, …, leading to damage to the machine and health risks for the user	Discomfort, Neurological disorder		5.6
4.6	**Material/substance hazards**			
4.6.1	Dust/fibre Health risks	Breathing/cancer		5.7
4.6.2	Explosive/Combustible Leaking fuel could catch fire when ignition sources are present	Explosion/fire		5.2.7.1, 5.2.7.2

"to be continued"

Table 1 (*end*)

Clauses/ Sub clauses	Danger zone or source of hazard	Type of hazard	Fig/subfigure	Relevant clause of this standard
4.6.3	Fumes Leaks in the exhaust system can lead to locally increased concentration of noxious substances	Suffocation/Intoxication		5.7
4.7	**Ergonomics hazards**			
4.7.1	Design and location of indicators The machine could start reversing without the operator being aware of it The user could assume that gearbox is in neutral when a gear is still engaged. The machine will in such case start moving suddenly	Fatigue, other hazards caused by error		5.2.11 5.2.12
4.7.2	Design and location of indicators The user could be confused and could operate controls in a wrong way	Fatigue, other hazards caused by error		5.8

5 Safety requirements and/or protective measures

5.1 General

Machinery shall comply with the safety requirements and/or protective measures of this clause. In addition, the machine 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 such as EN ISO 13857, the manufacturer shall carry out an adequate risk assessment, complementary to the guidance given in this European standard, for the requirements of the type B standard where choice is necessary or which have to be adapted to the specific situation.

5.2 Mechanical hazards

5.2.1 Throttle control

All ATVs shall be equipped with a means of controlling engine power in a progressive way through a throttle control. The throttle control shall be located on the right-hand side of the handlebar and shall be operable without removing the hand from the handlebar.

The throttle control shall be self-closing to an idle position once the operator's hand releases the control.

5.2.2 Braking devices

5.2.2.1 General requirements

All vehicles shall be equipped with two service braking devices, with independent controls and transmissions, one acting at least on the front wheels and the other at least on the rear wheels.