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Powered walk-behind and hand-held lawn trimmers and lawn edge trimmers — Mechanical safety requirements and test methods

*Coupe-bordures et coupe-gazon portables à la main et à conducteur à
pied — Prescriptions de sécurité mécanique et méthodes d'essai*



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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10518 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 13, *Powered lawn and garden equipment*.

Annex A forms an integral part of this International Standard.

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Powered walk-behind and hand-held lawn trimmers and lawn edge trimmers — Mechanical safety requirements and test methods

1 Scope

This International Standard specifies mechanical safety requirements and test methods applicable to powered walk-behind and hand-held lawn trimmers and lawn edge trimmers, with cutting element(s) of non-metallic filament line or freely pivoting non-metallic cutter(s) with a kinetic energy of not more than 10 J each, used by a standing operator primarily for cutting grass.

It does not apply to scissor-type or rigid-bladed lawn trimmers or lawn edge trimmers.

The electrical aspects of electrically powered lawn trimmers and lawn edge trimmers having a voltage exceeding 42 V d.c. or mains-connected are not covered by this International Standard.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5395:1990, *Power lawn-mowers, lawn tractors, lawn and garden tractors, professional mowers, and lawn and garden tractors with mowing attachments — Definitions, safety requirements and test procedures*.

IEC 335-1:1976, *Safety of household and similar electrical appliances — Part 1: General requirements*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 hand-held: Supported by hand, possibly assisted by wheel(s), skids or harness, etc.

3.2 walk-behind: Normally controlled by an operator walking behind a ground-supported unit.

3.3 lawn trimmer: Grass-cutting machine where the cutting means operates in a plane approximately parallel to the ground.

3.4 lawn edge trimmer: Grass-cutting machine for trimming lawn edges where the cutting means operates in a plane approximately perpendicular to the ground.

3.5 cutting means: Mechanism used to provide the cutting action in which one or more cutting elements, cutting by impact, rotate about an axis normal to the cutting plane.

3.6 cutting element: Single non-metallic filament line or freely pivoting non-metallic cutter.

3.7 drive unit: System which supports and powers the cutting means.

4 General construction

4.1 Handling

The machine shall be capable of normal use by an operator wearing gloves.

Any harness provided shall be of the quick-release type to ensure that the equipment can be quickly detached by the operator in an emergency.

Hand-held lawn trimmers and lawn edge trimmers, or the hand-held parts of such machines, with a mass of more than 5 kg shall have two handles. The distance between the centre of the two handles shall be at least 250 mm, when measured along the length of the handle support shaft. This measurement does not apply to two-handled lawn trimmers weighing 5 kg or less. The machine mass is determined with all accessories fitted and either with any tanks needed for operation half-full, or with 1 m of supply cable, as appropriate.

The gripping width of any handle required by this International Standard shall be at least 100 mm.

4.2 Power-driven components (other than cutting means)

Power-driven gears, chains, sprockets, belts, friction drives, pulleys, fans, fan wheels and other moving parts whenever they create a pinch point capable of causing injury, during normal starting and operating of the machine, shall be so positioned or guarded by shields or similar attachments as to prevent accidental contact with these components. Drive-shafts shall be fully guarded.

The principles set out in annex A of ISO 5395:1990 shall be followed when developing a guarding system.

The requirements of 4.2 do not apply to

- any part of a component functioning in contact with the soil;
- any axle of a ground wheel.

4.3 Heat protection

4.3.1 Temperature limits of exposed parts

A guard or shield shall be provided to prevent inadvertent contact with any exposed engine exhaust component, greater than 10 cm² and with a hot surface greater than 80 °C, during normal starting and operation of the machine.

Handles and permanently held controls shall not exceed 45 °C; other controls and surfaces which may be touched during normal operation shall not exceed 55 °C.

4.3.2 Test method

The test shall be conducted in the shade. The engine shall be operated at its maximum no-load speed until the temperatures stabilize. All measurements shall be referred to an ambient temperature of 20 °C ± 3 °C. Temperatures shall be determined by

correcting the observed temperature by the difference between the specified ambient and the test ambient temperature.

4.3.3 Test acceptance for exhaust surfaces

The tip or conical surface of the cone shown in figure 1 shall not make contact with a hot surface of the exhaust system greater than 10 cm² with a temperature greater than 80 °C.

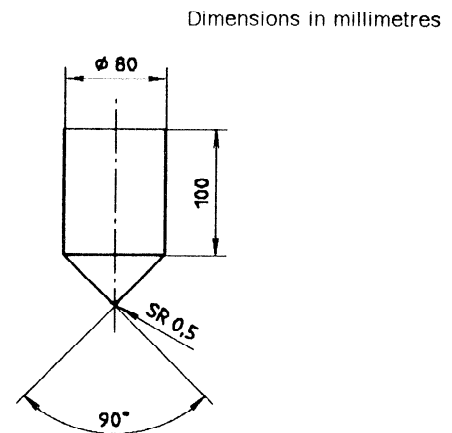


Figure 1 — Test cone (see 4.3.3)

4.4 Guard attachment

All guards or shields required under 4.2 and 4.3 shall be either permanently attached, or secured to prevent removal without the use of tools, or the construction of the machine shall be such that it cannot be used without the guard in its guarding position.

4.5 Protection from exhaust fumes

Engine exhausts shall be directed away from the operator.

4.6 Electrical requirements

4.6.1 Battery circuits

These electrical requirements apply only to battery circuits of less than 42 V. For the electrical requirements for mains-connected electrically driven machines, reference shall be made to IEC 335-1.

4.6.1.1 Electrical cables

Electrical cables shall be protected, or not located near any hot surfaces or in potentially abrasive contact with metal surfaces.