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Tractors and machinery for agriculture and forestry — Technical means for ensuring safety —

Part 5: **Power-driven soil-working equipment** **(standards.iteh.ai)**

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*Tracteurs et matériels agricoles et forestiers — Dispositifs techniques
permettant d'assurer la sécurité —*
Partie 5: Matériel de travail du sol à entraînement mécanique



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 4254-5 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort of the operator*.

ISO 4254 consists of the following parts, under the general title *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety*:

- Part 1: *General*
- Part 2: *Anhydrous ammonia applicators*
- Part 3: *Tractors*
- Part 4: *Forestry winches*
- Part 5: *Power-driven soil-working equipment*
- Part 6: *Equipment for crop protection*
- Part 7: *Combine harvesters, forage and cotton harvesters*
- Part 9: *Equipment for sowing, planting and distributing fertilizers*

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Tractors and machinery for agriculture and forestry — Technical means for ensuring safety —

Part 5: Power-driven soil-working equipment

1 Scope

This part of ISO 4254 specifies the special requirements to be met when designing tractor-operated, power-driven soil-working equipment according to ISO 3339-0:1986, Class 03 which has a power requirement of more than 20 kW.

It is additional to the general requirements, measures and means to reduce hazards to human life and health that are specified in ISO 4254-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 4254. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4254 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 3339-0:1986, *Tractors and machinery for agriculture and forestry — Classification and terminology — Part 0: Classification system and classification.*

ISO 4254-1:1989, *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety — Part 1: General.*

3 General technical requirements

3.1 Equipment shall meet the general requirements specified in ISO 4254-1.

3.2 Protective devices shall be designed either

a) in the form of unbroken guarding which maintains continuous contact with the soil surface when the machine is working; or

b) in the form of a distance guard which meets the following requirements:

1) any gaps within the area encompassed by such a device shall not be wider than 100 mm, and

2) the horizontal distance from its outer edge to the operative parts shall be at least 300 mm. The device shall be not more than 200 mm above the soil surface.

4 Special technical requirements

Special technical requirements for guards for soil-working equipment apply to all power-driven cultivators, both rotary and oscillating. The operative parts shall be fitted with protective devices which meet the requirements of 4.1 to 4.7 as appropriate.

4.1 Protective device at top

At the top of the cultivator, a protective device shall cover the operative parts.

4.2 Protective device at rear

At the rear of the cultivator, a protective device shall either

a) extend across the full width of the machine and maintain continuous contact with the soil surface when the machine is working; or

- b) if it is in the form of an adjustable cover, ensure that the horizontal distance of the trailing edge is at least 300 mm from the operative parts. The trailing edge shall be not more than 200 mm above the soil surface.

4.3 Protective device at front

At the front of the cultivator, a protective device shall extend across the full width of the machine and maintain continuous contact with the soil surface when the machine is working. If the protective device cannot always be in contact with the soil surface at the front, the operator shall be able to adjust it to take account of the working depth of the machine in accordance with 3.2 b) 2).

4.4 Protective devices at ends

At the ends of the cultivator, when the machine is working, protective devices shall maintain continuous contact with the soil so as to cover completely those parts of the operative parts which are exposed above the soil, regardless of its working depth.

With the machine raised from the working position, the protective devices shall totally cover the ends of the operative parts.

4.5 Alternative means

4.5.1 On any side where the requirements of 4.2, 4.3 and/or 4.4 cannot be achieved, the top protective device specified in 4.1 may be extended in accordance with 3.2 b) 2).

4.5.2 Some types of power-driven cultivator may be fitted with a clod roller, crumbler roller or seed drill to the front or rear of the machine. Many of these are detachable and some are adjustable, but by their design they may nevertheless not be protective devices in accordance with the requirements in 4.1 to 4.4. However, such attachments are acceptable as protective devices providing that they are not power-driven and that any gap created or capable of being created in the protective device or

between it and the cultivator does not exceed 100 mm in width.

Where a cultivator is used without an attachment which would normally act as a protective device, then an alternative protective device shall be fitted in accordance with 3.2.

4.6 Row-crop cultivators

Because of the possible difficulty in guarding each individual set of operative parts on row-crop cultivators, protective devices may be provided as if there were operative parts continuously across the full machine width.

4.7 Combined implements

The function of the protective devices specified in 4.1 to 4.5 may also be taken over by other machine parts (e.g. frames) or attachments (e.g. follow-up implements). Where a combination of implements or other machine parts is used to provide shielding of hazardous parts, the guarding effect shall be equivalent to that specified in the individual requirements given in these clauses. Attention shall be drawn to this point in the operating manual.

5 Adjustment controls

Any operational adjustment controls of a power-driven cultivator shall only be operable from a safety position.

6 Tractor stability

When designed and constructed to take account of this part of ISO 4254, some cultivators may interfere with the tractor, the PTO shaft or the tractor wheels. If the machine is moved rearward on the three-point linkage to avoid interference, the effect on the tractor stability shall be considered. The operator's manual shall provide guidance on this aspect, including weight distribution recommendations, to ensure stability.

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