SLOVENSKI STANDARD
SIST EN 14930:2007+A1:2009

01-maj-2009

Nadomeģ a:
SIST EN 14930:2007

Kmetijski in gozdarski stroji ter vrtna oprema - Nog no in ro no upravljani stroji - Opredelitev dostopa do vro ih povr inskih delov

Agricultural and forestry machinery and gardening equipment - Pedestrian controlled and hand-held machines - Determination of accessibility of hot surfaces

Land- und forstwirtschaftliche Maschinen und Gartengeräte - Mitgängergeführte und handgehaltene Maschinen - Bestimmung der Zugänglichkeit von heißen Oberflächen

Matériels agricoles et forestiers et matériels de jardinage - Machines portables à la main et à conducteur à pied - Détermination du risque de contact avec les surfaces chaudes

Ta slovenski standard je istoveten z: **EN 14930:2007+A1:2009**

ICS:

65.060.01	Kmetijski stroji in oprema na splošno	Agricultural machines and equipment in general

SIST EN 14930:2007+A1:2009 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14930:2007+A1

March 2009

ICS 65.060.01

Supersedes EN 14930:2007

English Version

Agricultural and forestry machinery and gardening equipment - Pedestrian controlled and hand-held machines - Determination of accessibility of hot surfaces

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This European Standard was approved by CEN on 26 April 2007 and includes Amendment 1 approved by CEN on 29 December 2008.

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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 Management Centre has the same status as the official versions.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14930:2007+A1:2009) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, 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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-12-29.

This document supersedes EN 14930:2007.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟩A1⟨ ⟨A1⟩.

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).

⟩A1⟨ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A1⟩

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, 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 and United Kingdom.

Introduction

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

Products with built-in engines or other heat-sources often show hot surfaces. If such a surface is touched by the unprotected skin, burning of the skin can occur. To avoid skin burning protective measures should be applied, especially in cases when the user of the product is not aware of the risk of burning. So it is essential to assess the risk of burning when using a product with a built-in heat source and to apply protective measures if necessary.

This European Standard provides a test method to identify the touchable hot surfaces. Guidance for human response to contact with hot surfaces is given in EN 13202.

C-type standard writers should consider making an exception from this test for parts or systems which can not be guarded (e.g. the inside and the end of exhaust pipe outlet).

The aim of this European Standard is that it will be referenced in the type C standards.

1 Scope

This European Standard specifies a method for combustion engine driven pedestrian controlled and hand-held machines with or without back pack power unit used in agriculture, forestry and gardening to determine those parts of the surfaces identified by the product specific standards that are hot surfaces and can be touched unintentionally by an operator during normal operation.

This European Standard is only applicable together with product specific standards for the categories of machines specified above.

This European Standard does not specify which surfaces shall be assessed.

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 13202:2000, *Ergonomics of the thermal environment — Temperatures of touchable hot surfaces — Guidance for establishing surface temperature limit values in product specific standards with the aid of EN 563*

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

3 Terms and definitions

For any machine covered by this European Standard, the terms and definitions of the product specific standard directly applicable to that type of machine, if available, take precedence over the terms and definitions of this European Standard.

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003, EN 13202:2000 and in product specific standards directly applicable to that type of machine, if available, and the following apply.

3.1
normal operation
use of the machine which is reasonably foreseeable, as seen by the manufacturer, and which is consistent with such activities as starting, stopping, fuelling, connecting to (or disconnecting from) a power source and performing its application

4 Principles

This European Standard identifies, with the use of a test cone, the touchable hot surfaces.

Surfaces where the contactable area exceeds 10 cm^2 and of which the temperature exceeds the acceptable values for inadvertent contact are detected.

5 Test equipment

5.1 Temperature measuring equipment

The measurement of the surface temperature shall be carried out by means of an electrical thermometer with a contact sensor made of metal and insignificant heat capacity. The accuracy of the instrument shall be within the range of ± 2 °C.

NOTE The data presented in this European Standard have been evaluated using the above mentioned measuring facility and results obtained by other techniques may not be suitable for comparison with the data.

5.2 Test cone

The test cone shall have the dimensions as given in Figure 1.

Dimensions in millimetres

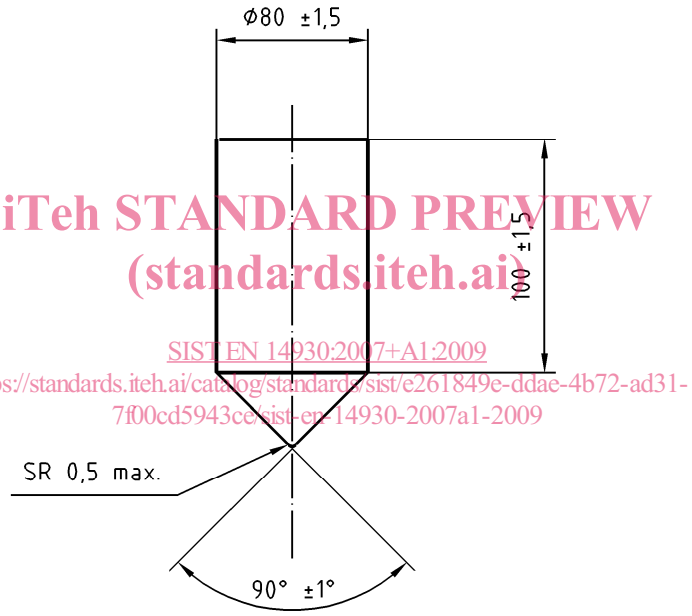

Figure 1 — Test cone

6 Test procedure

6.1 Determination of touchable surfaces

The surfaces to be checked shall be specified by the product specific standards.

The test cone according to 5.2 shall be moved in any possible direction towards the hot surfaces specified for testing.

Mark the areas touchable with the test cone tip or conical surface.

6.2 Determination of temperature of touchable surfaces

Measure the temperatures of the touchable surfaces identified in 6.1, under the following conditions:

— the test shall be conducted without the influence of sunlight with an air speed of max. 5 m/s and at 20 °C ± 5 °C ambient temperature;

— the machine shall be stationary with the tools operating, unloaded and running at maximum operating engine/motor speed. The operating conditions shall be recorded in the test report;

— the machine shall be operated until temperatures have stabilised for normal operation of the machine before testing;

— the temperature (T) shall be determined by correcting the measured temperature (T_M) depending on the ambient temperature (T_A) at the time of the test as follows:

$$T = T_M - (T_A - 20)$$

where

T_M is the measured temperature in °C;

T_A is the ambient temperature in °C;

— when measuring the surface temperature care shall be taken that good contact is established between the sensor and the surface. The use of appropriate force and the use of a conducting paste may be necessary for this purpose. The area of contact should lie flat on the surface and shall not become canted. The measured value should not be read until temperature equilibrium between the surface and the sensor has been reached. To reach this equilibrium more quickly it may be convenient to heat the contact sensor of the measuring instrument at a different point of the hot surface before carrying out the actual measurement;

— mark the surfaces with temperatures higher than burn threshold values for up to 0,5 s contact period as given in Annex A and Annex B of EN 13202:2000. These surfaces are identified as hot surfaces;

— measure and record the area of the marked surface(s). If the area is interrupted the procedure in 6.3 shall be followed.

6.3 Determination of area for interrupted surfaces

If a marked surface (with area A_1) consists of multiple separate surfaces of which the sum of the areas (A_2) exceeds 80 % of A_1, then A_1 shall be considered as one uninterrupted area (see Figure 2).

Surfaces whose structure does not allow a ball with 2 mm diameter to penetrate more than 2 mm below highest parts of the structure shall be considered as part of A_1 (see Figure 2).