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Agricultural and forestry machinery – Inspection of sprayers in use – Part 2: Horizontal boom sprayers (ISO 16122-2:2015)

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Denna standard ersätter SS-EN 13790-1, utgåva 1.

The European Standard EN ISO 16122-2:2015 has the status of a Swedish Standard. This document contains the official English version of EN ISO 16122-2:2015.

This standard supersedes the Swedish Standard SS-EN 13790-1, edition 1.

**Förhållandet till övriga delar under samma huvudtitel - Utdrag ur Förord i ISO 16122-2:2015/
Relations to other parts under the same general title - Extract from the Foreword of ISO 16122-2:2015**

ISO 16122 consists of the following parts, under the general title *Agricultural and forestry machinery — Inspection of sprayers in use*:

- Part 1: General
- Part 2: Horizontal boom sprayers
- Part 3: Sprayers for bush and tree crops
- Part 4: Fixed and semi-mobile sprayers

Other parts are planned (see Annex A).

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EUROPEAN STANDARD

EN ISO 16122-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2015

ICS 65.060.40

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English Version

Agricultural and forestry machinery - Inspection of sprayers in use - Part 2: Horizontal boom sprayers (ISO 16122-2:2015)

Matériel agricole et forestier - Contrôle des pulvérisateurs en service - Partie 2: Pulvérisateurs à rampe horizontale (ISO 16122-2:2015)

Land- und Forstmaschinen - Kontrolle von in Gebrauch befindlichen Pflanzenschutzgeräten - Teil 2: Geräte mit horizontalem Gestänge (ISO 16122-2:2015)

This European Standard was approved by CEN on 13 September 2014.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 16122-2:2015) has been prepared by Technical Committee ISO/TC 23 "Tractors and machinery for agriculture and forestry" in collaboration with 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of an identical text or by endorsement, at the latest by September 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

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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.

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Endorsement notice

The text of ISO 16122-2:2015 has been approved by CEN as EN ISO 16122-2:2015 without any modification.

Introduction

There are two main reasons for the inspection:

- less potential risk of environmental contamination by plant protection products;
- good control of the pest with the minimum possible input of plant protection product.

In order to use plant protection products in agricultural production safely, it is necessary to define the requirements and test methods for sprayers in use. This is a relevant step after having standardized minimum requirements for new sprayers, in respect of safety hazards (see ISO 4254-6) and potential risks of environmental contamination (see ISO 16119 series).

Standardizing the requirements and methods for inspection of sprayers in use, takes into consideration not only the original performance of the sprayer but also its use, care and maintenance. This is a logical link to ensure the continued benefit arising from the supply of new sprayers of good quality.

The inspection of sprayers in use can be a mandatory requirement or adopted on a voluntary basis. In both cases further requirements, outside the scope of this standard, are necessary for the management of inspections. These include, for example, requirements for the competence of persons carrying out inspections and the frequency of inspections.

NOTE National or local regulations may also apply concerning the qualifications and competence of inspectors.

Agricultural and forestry machinery — Inspection of sprayers in use —

Part 2: Horizontal boom sprayers

1 Scope

This part of ISO 16122, when used together with ISO 16122-1, specifies the requirements and test methods for the inspection of horizontal boom sprayers, when in use.

The requirements relate mainly to the condition of the sprayer with respect to its potential risk for the environment and its performance to achieve good application.

NOTE Requirements for the protection of inspectors during an inspection are given in ISO 16122-1.

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.

ISO 5682-2:1997, *Equipment for crop protection — Spraying equipment — Part 2: Test methods for hydraulic sprayers*

ISO 16122-1:2015, *Agricultural and forestry machinery — Inspection of sprayers in use — Part 1: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16122-1 and the following apply.

3.1

horizontal boom sprayer

machine for spraying plant protection products, along a boom or in bands, with a spray generally directed downwards onto/into the target

Note 1 to entry: Characteristics of horizontal boom sprayers are specified in ISO 16122-1:2015, Table A.1.

3.2

plant protection product container

collective name for plant protection product packaging

EXAMPLE Can, bottle, bag, sack, box.

3.3

cleaning device

device for cleaning the inside of empty plant protection product containers

Note 1 to entry: The device may be an integral part of the sprayer or an independent installation (e.g. stationary equipment).

4 Requirements and method of verification

4.1 Leaks and dripping

4.1.1 Static leaks

The sprayer shall be filled with water to its nominal capacity.

With the pump not running and the sprayer parked on a level horizontal surface, a visual inspection for any leakage from the tank, pump and associated pipes shall be carried out.

For high capacity tanks, water filling can be reduced to no less than half of the nominal tank volume, provided an additional inspection of the tank is carried out in order to identify any cracks, holes or other damage that can cause leakage.

Compliance shall be checked by inspection.

4.1.2 Dynamic leaks

4.1.2.1 Leak test when not spraying

With the sprayer running at a pressure which is equal to the maximum obtainable pressure for the system, with the section valves closed, there shall be no leakage from any part of the sprayer.

Compliance shall be checked by inspection.

4.1.2.2 Leak test while spraying

While spraying at a pressure that is equal to the maximum working pressure recommended by the sprayer manufacturer, or the nozzle manufacturer for the nozzles mounted on the sprayer if lower, there shall be no leakage from any part of the sprayer or spray boom.

Compliance shall be checked by inspection.

4.1.3 Spraying and dripping on parts

Regardless of the height of the boom above the ground, in the height range between the nozzles and the target surface, no liquid shall be sprayed directly on to the sprayer itself (e.g. parts of the sprayer, hoses). This does not apply if needed by function (e.g. sensors) and if dripping is minimised.

Compliance shall be checked by inspection and function test.

4.2 Pump(s)

4.2.1 Capacity

The pump capacity shall be suited to the needs of the sprayer.

- a) The pump capacity shall be at least 90 % of its original nominal flow given by the sprayer manufacturer or another minimum pump capacity given by the sprayer manufacturer.

Compliance shall be checked by measurement according to [5.2.1.2.2](#) or [5.2.1.2.3](#).

- b) Or, alternatively, the pump(s) shall have sufficient flow rate capacity in order to be able to spray while maintaining a visible agitation as specified in [4.3.1](#).

Compliance shall be checked by inspection.

4.2.2 Pulsations

The pulsations shall not exceed 10 % of the working pressure.

Compliance shall be checked by measurement and function test according to [5.2.2](#).

4.2.3 Air chamber

If an air chamber is present the membrane shall not be damaged, there shall be no appearance of liquid when operated at the maximum pressure recommended by the sprayer manufacturer. The air pressure shall be the pressure recommended by the sprayer manufacturer or between 30 % and 70 % of the working pressure for the nozzles in use.

Compliance shall be checked by function test and measurement.

4.3 Spray mix agitation

4.3.1 Hydraulic

A clearly visible agitation shall be maintained:

- when spraying at the maximum working pressure as recommended by the sprayer or nozzle manufacturer (whichever is the lower);
- with the largest nozzles mounted on the sprayer;
- with pump rotation speed as recommended by the sprayer manufacturer;
- with the tank filled to half its nominal capacity.

Compliance shall be checked by inspection.

4.3.2 Mechanical

A clearly visible agitation shall be maintained when the agitation system is working as recommended by the sprayer manufacturer, with the tank filled to half its nominal capacity.

Compliance shall be checked by inspection.

4.4 Spray liquid tank

4.4.1 Lid

The tank shall be provided with a lid that shall be well adapted and in good condition.

This lid shall be tightly sealed to prevent leakage and shall avoid unintended opening.

If a vent is fitted in the lid (according to [4.4.4](#)), it shall prevent spillage.

Compliance shall be checked by inspection.

4.4.2 Filling hole(s)

There shall be a strainer in good condition in the filling hole(s).

Compliance shall be checked by inspection.