SLOVENSKI STANDARD
SIST EN 15695-1:2017

01-november-2017

Nadomešča:
SIST EN 15695-1:2010

Kmetijski traktorji in stroji z lastnim pogonom za zaščito rastlin - Zaščita upravljalca (voznika) pred nevarnimi snovmi - 1. del: Vrste kabin, zahteve in postopki preskušanja

Agricultural tractors and self-propelled sprayers - Protection of the operator (driver) against hazardous substances - Part 1: Cab classification, requirements and test procedures

Landwirtschaftliche Traktoren und selbstfahrende Pflanzenschutzgeräte - Schutz der Bedienungsperson (Fahrer) vor gefährlichen Substanzen - Teil 1: Kabinen-Klassifizierung, Anforderungen und Prüfverfahren

Tracteurs agricoles et pulvérisateurs automoteurs - Protection de l'opérateur (conducteur) contre les substances dangereuses - Partie 1 : Classification des cabines, exigences et méthodes d'essais

Ta slovenski standard je istoveten z: **EN 15695-1:2017**

ICS:

65.060.10	Kmetijski traktorji in prikolice	Agricultural tractors and trailed vehicles

SIST EN 15695-1:2017 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15695-1

September 2017

ICS 65.060.10

Supersedes EN 15695-1:2009

English Version

Agricultural tractors and self-propelled sprayers - Protection of the operator (driver) against hazardous substances - Part 1: Cab classification, requirements and test procedures

Tracteurs agricoles et pulvérisateurs automoteurs - Protection de l'opérateur (conducteur) contre les substances dangereuses - Partie 1 : Classification des cabines, exigences et méthodes d'essais

Landwirtschaftliche Traktoren und selbstfahrende Pflanzenschutzgeräte - Schutz der Bedienungsperson (Fahrer) vor gefährlichen Substanzen - Teil 1: Kabinen-Klassifizierung, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 3 July 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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

Contents

Page

European foreword

This document (EN 15695-1:2017) 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 March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15695-1:2009.

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.

The EN 15695 series, *Agricultural tractors and self-propelled sprayers – Protection of the operator (driver) against hazardous substances*, consists of the following parts:

— *Part 1: Cab classification, requirements and test procedures;*

— *Part 2: Filters, requirements and test procedures.*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate in the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this European Standard. 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.

When operating self-propelled sprayers or tractors, the operator can be exposed to hazardous substances such as dust, aerosols or vapours (for example during the application of plant protection products or fertilisers). Cabs of agricultural tractors and self-propelled sprayers providing protection against these substances may be used to reduce operator exposure to air-borne contaminants generated during farming operations.

With regard to the application of plant protection products (PPP) the operator can be exposed to risks:

— before the actual spraying operation (e.g. handling of PPP cans/packages, spray tank filling, sprayer adjustment);

— during the spraying operation (e.g. on the tractor or self-propelled sprayer with/without cab, when working at the sprayer when adjusting the sprayer in the field, removing nozzle blockages, etc.);

— after the spraying operation (e.g. when removing residues, sprayer cleaning, service and maintenance operations).

Protective measures (personal protective equipment (PPE)) are specified on PPP labels today, for example:

— dermal exposure: gloves, overall, apron, headdress (with face protection), protective goggles;

— respiratory exposure: filtering half masks.

The objective of this European Standard is to improve the operator protection by using the protective function of the cab of self-propelled sprayers and tractors in case of mounted or trailed sprayers. For this purpose, this European Standard specifies cab categories, performance requirements, test procedures and the operator information to be provided, in particular with regard to installation, use and maintenance operations.

1 Scope

This European Standard is applicable to cabs of agricultural and forestry tractors and self-propelled sprayers. Its purpose is to limit the exposure of the operator (driver) to hazardous substances when applying plant protection products (PPP) and liquid fertilisers. This European Standard specifies different categories of cabs of agricultural and forestry tractors and self-propelled sprayers and the relevant requirements and test procedures in order to limit the exposure of the operator (driver) to hazardous substances when inside the cab. It also specifies the information to be provided by the tractor or self-propelled sprayer manufacturer.

This document does not cover:

— the exposure linked to fumigants;

— the category of cab and performance level to be used for any particular application;

— the actual cab performance in the field applications;

— the field durability of filters.

This document is not applicable to tractor cabs which are manufactured before the date of its publication as an EN.

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.

EN 14387:2004+A1:2008, *Respiratory protective devices - Gas filter(s) and combined filter(s) - Requirements, testing, marking*

EN 15695-2:2017, *Agricultural tractors and self-propelled machinery — Protection of the operator (driver) against hazardous substances — Part 2: Filters, requirements and test procedures*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

ISO 14269-5:1997, *Tractors and self-propelled machines for agriculture and forestry — Operator enclosure environment — Part 5: Pressurization system test method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

3.1
hazardous substance
substance such as dust, vapour and aerosol except fumigant which can occur when applying plant protection products and fertiliser and which can expose an operator to a risk of harm

3.1.1
plant protection product
PPP
active substance and preparation containing one or more active substances, presented in the form in which they are supplied to the user, intended to protect plants or plant products against all harmful organisms or prevent the action of such organisms, influence the life processes of plants, other than as a nutrient (e.g. growth regulators) and preserve plant products

3.1.2
dust
finely divided, airborne and sedimented solid particles

3.1.3
aerosol
suspension of solid, liquid or solid and liquid particles in a gaseous medium having a negligible falling velocity (generally considered to be less than 0,25 $m \cdot s^{-1}$)

[SOURCE: EN 132:1998, 3.1]

3.1.4
vapour
gaseous phase of a substance which is in equilibrium with its liquid or solid state at 20 °C and 1 bar (absolute)

3.2
filter
device to reduce the quantity of hazardous substances present in the air entering the cab

Note 1 to entry: It can comprise one or more filters, an adsorbent, a catalyst or a combination of these elements, or another technology capable of fulfilling the same functions.

3.3
cab
operator enclosure which surrounds the operator (driver) by means of a physical barrier and prevents the free passage of external air into the area of the operator

4 Specification of categories of cabs

4.1 Category 1

Cab which does not provide a specified level of protection against hazardous substances.

4.2 Category 2

Cab which provides protection against dust(s).

4.3 Category 3

Cab which provides protection against dust(s) and aerosols.

4.4 Category 4

Cab which provides protection against dust(s), aerosols and vapours.

5 Safety requirements and/or protective/risk reduction measures

5.1 Filter housing

The cabs of categories 2, 3 and 4 shall provide a housing which:

— allows the fitting of filter(s) as specified in EN 15695-2:2017, 3.1 to 3.3 by the operator;

— is designed to prevent the passage of unfiltered air into the cab;

— is accessible for service, maintenance or replacement of the filter.

5.2 Category 2

5.2.1 The cab shall be fitted with an air delivery and filtration system aimed at reducing the quantity of dust(s) as specified in EN 15695-2:2017, 3.1.

5.2.2 The air delivery system shall cause a positive differential pressure within the cab of:

— 50 Pa minimum; or

— 20 Pa minimum, if a device informing the operator when the pressure drops below 20 Pa is provided;

throughout the test, as specified in ISO 14269-5 and Annex A.

Usually 200 Pa is recommended as maximum pressure within the cab (see for example ISO 14269-2).

5.2.3 The air delivery system shall provide at least 30 m^3/h of filtered new air under the conditions specified in the operator's manual (see 7.1).

5.3 Category 3

5.3.1 The cab shall be fitted with an air delivery and filtration system aimed at reducing the quantity of dust(s) as specified in EN 15695-2:2017, 3.1 and aerosols as specified in EN 15695-2:2017, 3.2.

5.3.2 The air delivery system shall cause a positive differential pressure within the cab of 20 Pa minimum throughout the test, as specified in ISO 14269-5. A device informing the operator when the pressure drops below 20 Pa shall be provided.

5.3.3 The air flow rate of filtered fresh air shall comply with 5.2.3.

5.4 Category 4

5.4.1 The cab shall be fitted with an air delivery and filtration system aimed at reducing the quantity of dust(s) as specified in EN 15695-2:2017, 3.1, aerosols as specified in EN 15695-2:2017, 3.2 and vapours as specified in EN 15695-2:2017, 3.3.

5.4.2 The air delivery system shall comply with 5.3.2.

5.4.3 The air flow rate of filtered fresh air shall comply with 5.2.3.

5.5 Tightness of the air delivery and filtration system

The air delivery and filtration system and the housing of the filter of cab categories 3 and 4 shall be tested according to Annex B or C.

5.6 Blockages

The air delivery and filtration system shall include means to minimize blockages. The operator's manual shall include information on service intervals (as given in 7.1).

5.7 Location of air inlet

The location of the cab ventilation air inlet shall take into account the minimization of hazardous substances in the air taken in and the life time of filters (servicing).

5.8 Cab apertures

The requirements of Clause 5 apply even if cab apertures for control cables or hoses are provided.

6 Verification of requirements

Tables 1 to 4 give the list of requirements and their verification for each cab category.

Table 1 — Cab category 1: List of requirements and their verification

Clause / subclause	Verification		
	Inspection	Measurement	Procedure / reference
7.1	X	-	-
7.1.1	X	-	-

Table 2 — Cab category 2: List of requirements and their verification

Clause / subclause	Verification		
	Inspection	Measurement	Procedure / reference
5.1	X	-	-
5.2.1	X	-	-
5.2.2	-	X	According to ISO 14269-5, and 7.1 and Annex A of this standard with regard to the adjustment of the air delivery system and the use of apertures for the remote operation of mounted or trailed implements. The air delivery and pressure system shall be tested according to Annex B (B.4) or Annex C (C.3.1, C.3.2 and C.3.3).
5.2.3	-	X	
5.6	X	-	-
7.1	X	-	-
7.1.2	X	-	-

Table 3 — Cab category 3: List of requirements and their verification

Clause / subclause	Verification		
	Inspection	Measurement	Procedure / reference
5.1	X	-	-
5.3.1	X	-	-
5.3.2	-	X	According to ISO 14269-5, and 7.1 and Annex A of this standard with regard to the adjustment of the air delivery system and the use of apertures for the remote operation of mounted or trailed implements.
5.3.3	-	X	
5.5	-	X	According to 7.1 and Annex B or C of this standard with regard to the adjustment of the air delivery system and the use of apertures for the remote operation of mounted or trailed implements.
5.6	X	-	-
7.1	X	-	-
7.1.3	X	-	-

Table 4 — Cab category 4: List of requirements and their verification

Clause / subclause	Verification		
	Inspection	Measurement	Procedure / reference
5.1	X	-	-
5.4.1	X	-	-
5.4.2	-	X	According to ISO 14269-5, and 7.1 and Annex A of this standard with regard to the adjustment of the air delivery system and the use of apertures for the remote operation of mounted or trailed implements.
5.4.3	-	X	
5.5	-	X	According to 7.1 and Annex B or C of this standard with regard to the adjustment of the air delivery system and the use of apertures for the remote operation of mounted or trailed implements.
5.6	X	-	-
7.1	X	-	-
7.1.4	X	-	-

7 Information for use

7.1 Operator's manual

7.1.1 General

The cab category shall be declared in the operator's manual. In addition, the operator's manual shall provide the following information, if relevant:

a) the installation of the correct filter(s);