



SLOVENSKI STANDARD SIST EN 707:1999

01-december-1999

Kmetijski stroji - Cisterne za gnojevko - Varnost

Agricultural machinery - Slurry tankers - Safety

Landmaschinen - Flüssigmisttankwagen - Sicherheit

Matériel agricole - Epandeurs de lisier - Sécurité

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ICS:

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ICS 65.060.25

English version

Agricultural machinery - Slurry tankers - Safety

Matériel agricole - Epandeurs de lisier - Sécurité

Landmaschinen - Flüssigmisttankwagen - Sicherheit

This European Standard was approved by CEN on 26 April 1999.

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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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Contents	Page
Foreword	3
0 Introduction	4
1 Scope	4
2 Normative references	4
3 Definitions	5
4 Safety requirements and/or measures	5
4.1 General	5
4.2 Requirements for all types of slurry tankers	5
4.3 Requirements for mechanically powered slurry tankers.....	11
4.4 Requirements for pneumatically powered slurry tankers.....	11
5 Verification of the safety requirements and/or measures	12
6 Information for use	12
6.1 Instruction handbook.....	12
6.2 Marking.....	13
Annex A (normative) List of hazards	15
Annex B (informative) Examples of slurry tankers	20
Annex ZA (informative) Relationship of this European Standard with EU Directives	24

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Foreword

This European Standard 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 December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

This European Standard 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 standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Annex A is normative and contains the "List of hazards". Annex B is informative.

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0 Introduction

The extent to which hazards are covered is indicated in the scope of this standard. These hazards are specific to slurry tankers.

The hazards that are common to all agricultural machines (self-propelled, mounted, semi-mounted and trailed) will be dealt with in a standard currently in preparation (prEN 1553).

The requirements of the European Directive on pressure equipment will be dealt with by the revision of this standard.

1 Scope

This standard specifies specific safety requirements and their verification for the design and construction of all semi-mounted, trailed and self-propelled slurry tankers, including their spreading or injecting devices, intended for spreading or injecting slurry which are operated by either pneumatic or mechanical power.

NOTE : Braking requirements are not included in this standard. These will be studied during its revision depending on the development of European regulations.

In addition, it specifies the type of information on safe working practices to be provided by the manufacturer.

The list of significant hazards dealt with in this standard is given in Annex A. Annex A also indicates the hazards which have not been dealt with.

Environmental aspects have not been considered in this standard.

This standard applies primarily to machines which are manufactured after the date of issue of the standard.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 292-1	1991	Safety of machinery - Basic concepts, general principles for design - Part 1 : Basic terminology, methodology
EN 292-2	1991	Safety of machinery - Basic concepts, general principles for design - Part 2 : Technical principles and specifications (including amendment A1:1995)
EN 294	1992	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 764	1994	Pressure equipment - Terminology and symbols - Pressure, temperature, volume

prEN 1553 1998 Agricultural machinery - Agricultural self-propelled, mounted, semi-mounted and trailed machines - Common safety requirements

3 Definitions

For the purposes of this standard, the definitions given in EN 292-1:1991 and EN 292-2:1991 apply together with the following :

NOTE : Annex B gives illustrations of slurry tankers and components.

- 3.1 slurry tanker** : Machine for handling, transporting and distributing slurry.
- 3.2 mechanically powered slurry tanker** : Machine for which the energy required for filling the tank and for spreading is directly provided by a pump.
- 3.3 pneumatically powered slurry tanker** : Machine for which the energy required for filling the tank and for spreading is provided by an air compressor that creates respectively either vacuum or pressure in the tank.
- 3.4 floating position** : Position in which the slurry injecting devices enter into the ground under the effect of their own weight.
- 3.5 position with weight transfer** : Position in which the slurry injecting devices enter into the ground under the effect of their own weight plus a vertical downward force.
- 3.6 filling arm** : Articulated device intended to support the pipe used for the filling of the tank.

4 Safety requirements and/or measures

4.1 General

Machines shall comply as appropriate with EN 292 for hazards which are not dealt with and especially with Annex A of EN 292-2:1991/A1:1995 when EN 292 does not give precise requirements.

Unless otherwise specified in this standard, the machine shall comply with the requirements of prEN 1553:1998 and with tables 1, 3, 4 and 6 of EN 294:1992.

NOTE : The dynamic stability of the slurry tanker will be dealt with by the revision of the standard.

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4.2 Requirements for all types of slurry tankers

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4.2.1 Manual controls

4.2.1.1 Manual control of the distributing operation

It shall be possible to start and stop the distributing operation from the driving position of the tractor or self-propelled machine.

4.2.1.2 Manual control for the compressor or the pump

Preferably, it shall be possible to actuate the manual control for the compressor or the pump from the driving position of the tractor or self-propelled machine.

Otherwise one manual control, accessible from the ground, shall be located on each side of the tank at a minimum horizontal distance of 550 mm from the central axis of PTO drive shaft, measured perpendicular to this axis (see example in figure 1).

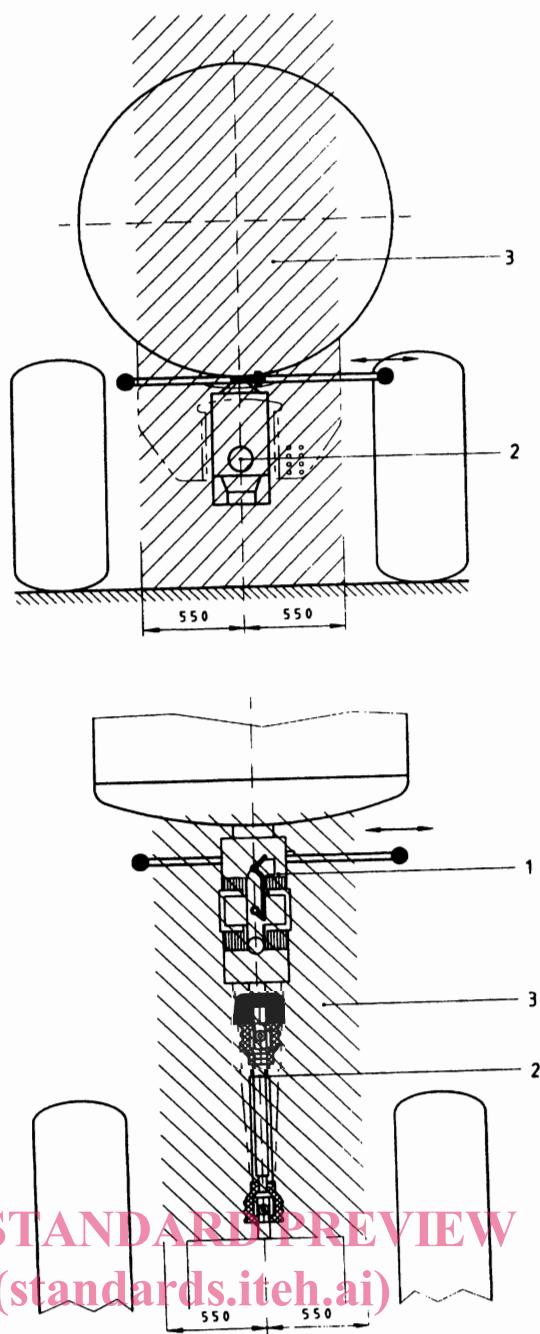
The functions linked to the different positions of the manual control shall be clearly identified.

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Dimensions in millimetres



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- 1 - Compressor or pump
- 2 - Central axis of PTO drive shaft
- 3 - Area in which manual controls of the compressor shall not be located

Figure 1

4.2.2 Tank

4.2.2.1 Openings

The tank shall have sufficiently sized and placed opening(s) to allow effective cleaning of all of the tank interior or to eliminate any clogging without the necessity for personnel to enter the tank.

Openings in the upper part of the tank greater than 400 mm in diameter, or if they are rectangular of more than 400 mm x 300 mm, shall be provided with a grating which can only be removed by the use of tools. The apertures in the grating shall not exceed these dimensions.

4.2.2.2 Covers for openings

Covers on the upper part of the tank shall be designed, or fitted with a device, to prevent their unintentional closing.

Where a cover is hydraulically controlled, it shall be possible to actuate the manual control from the driving position of the tractor or self-propelled machine and the hydraulic hose coupling which connects to the tractor shall be clearly identified.

4.2.2.3 Partitions

Tanks having a capacity equal to or greater than 6 000 l shall be equipped with anti-surge partition(s) according to table 1. The partition(s) shall be perpendicular to the direction of movement of the machine and each of them shall have a surface area at least equal to 2/3 of the tank cross-section (see figure 2 for examples).

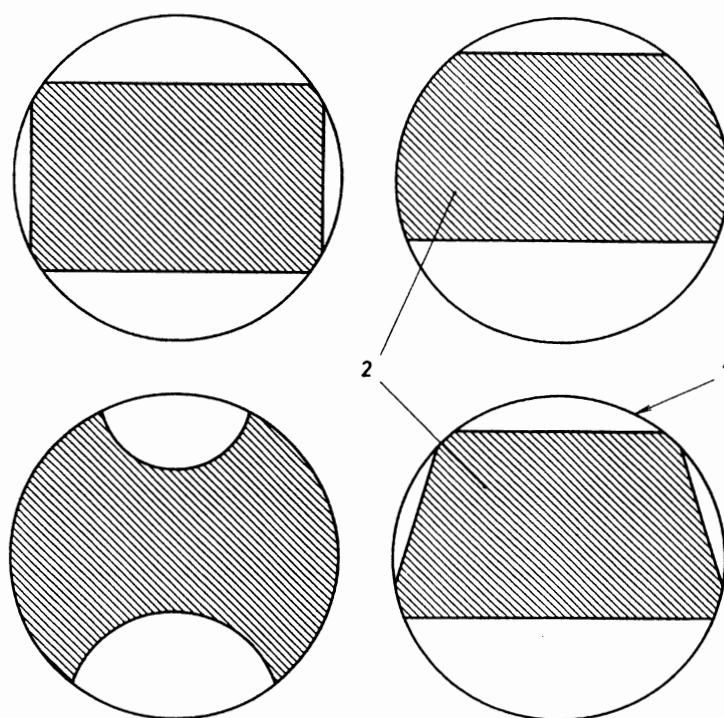
Table 1

Capacity C of the tank l	Minimum number of partitions
$6\ 000 \leq C < 10\ 000$	1
$10\ 000 \leq C < 15\ 000$	2
$C \geq 15\ 000$	3

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- 1 - Example of circular section of a tank
- 2 - Partitions

Figure 2 : Examples of anti-surge partitions

4.2.2.4 Hoses

Slurry tankers which need connecting hoses for filling purposes shall be fitted with means for supporting and securely retaining these hoses on the tanker during transport.

4.2.2.5 Filling arm

It shall only be possible to actuate the manual control of the filling arm, if any, from the driving position of tractor or self-propelled machine.

The complete range of movement of the filling arm shall be visible to the operator when at the driving position.

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4.2.3 Spreading or injecting boom

4.2.3.1 Swivelling components

When boom is folded/unfolded in accordance with the information in the instruction handbook, no part of the boom shall normally extend more than 4 m above the ground.

The folding/unfolding operations shall not require a manual force greater than 250 N.