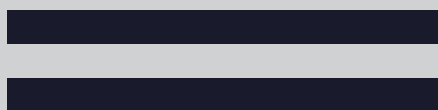


SVENSK STANDARD

SS-EN 13922:2020

Transportbehållare för farligt gods – Serviceutrustning för behållare – Överfyllnadsskydd för flytande bränslen

Tanks for transport of dangerous goods – Service equipment for tanks – Overfill prevention systems for liquid fuels



sis Svenska
Institutet för
Standarder

Språk: engelska/English

Utgåva: 3

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-80020338>

Den här standarden kan hjälpa dig att effektivisera och kvalitetssäkra ditt arbete. SIS har fler tjänster att erbjuda dig för att underlätta tillämpningen av standarder i din verksamhet.

SIS Abonnemang

Snabb och enkel åtkomst till gällande standard med SIS Abonnemang, en prenumerationstjänst genom vilken din organisation får tillgång till all världens standarder, senaste uppdateringarna och där hela din organisation kan ta del av innehållet i prenumerationen.

Utbildning, event och publikationer

Vi erbjuder även utbildningar, rådgivning och event kring våra mest sålda standarder och frågor kopplade till utveckling av standarder. Vi ger också ut handböcker som underlättar ditt arbete med att använda en specifik standard.

Vill du delta i ett standardiseringsprojekt?

Genom att delta som expert i någon av SIS 300 tekniska kommittéer inom CEN (europeisk standardisering) och/eller ISO (internationell standardisering) har du möjlighet att påverka standardiseringsarbetet i frågor som är viktiga för din organisation. Välkommen att kontakta SIS för att få veta mer!

Kontakt

Skriv till kundservice@sis.se, besök [sis.se](https://www.sis.se) eller ring 08 - 555 523 10

© Copyright/Upphovsrätten till denna produkt tillhör Svenska institutet för standarder, Stockholm, Sverige. Upphovsrätten och användningen av denna produkt regleras i slutanvändarlicensen som återfinns på [sis.se/slutanvandarlicens](https://www.sis.se/slutanvandarlicens) och som du automatiskt blir bunden av när du använder produkten. För ordlista och förkortningar se [sis.se/ordlista](https://www.sis.se/ordlista).

© Copyright Svenska institutet för standarder, Stockholm, Sweden. All rights reserved. The copyright and use of this product is governed by the end-user licence agreement which you automatically will be bound to when using the product. You will find the licence at [sis.se/enduserlicenseagreement](https://www.sis.se/enduserlicenseagreement).

Upplysningar om sakinnehållet i standarden lämnas av Svenska institutet för standarder, telefon 08 - 555 520 00. Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.

Standarden är framtagen av kommittén för Transportbehållare för farligt gods, SIS/TK 291.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Fastställd: 2020-02-24

ICS: 13.300;23.020.10;23.020.20;43.080.10

Europastandarden EN 13922:2020 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13922:2020.

Denna standard ersätter SS-EN 13922:2011, utgåva 2.

The European Standard EN 13922:2020 has the status of a Swedish Standard. This document contains the official version of EN 13922:2020.

This standard supersedes the SS-EN 13922:2011, edition 2.

EUROPEAN STANDARD

EN 13922

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2020

ICS 13.300; 23.020.20

Supersedes EN 13922:2011

English Version

Tanks for transport of dangerous goods - Service equipment for tanks - Overfill prevention systems for liquid fuels

Citernes destinées au transport de matières dangereuses - Équipement de service pour citernes - Dispositifs limiteurs de remplissage pour carburants pétroliers liquides

Tanks für die Beförderung gefährlicher Güter - Bedienungsausrüstung von Tanks - Überfüllsicherungssysteme für flüssige Kraft- und Brennstoffe

This European Standard was approved by CEN on 1 December 2019.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, 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: Rue de la Science 23, B-1040 Brussels

SS-EN 13922:2020 (E)

| Contents | | Page |
|--|--|-----------|
| European foreword..... | | 3 |
| Introduction | | 4 |
| 1 | Scope | 5 |
| 2 | Normative references..... | 5 |
| 3 | Terms and definitions | 6 |
| 4 | Functions..... | 8 |
| 5 | Major components | 8 |
| 5.1 | Tank-vehicle mounted equipment | 8 |
| 5.2 | Equipment fitted at the gantry | 8 |
| 5.3 | Optional equipment | 8 |
| 6 | Characteristics | 8 |
| 6.1 | Overfill prevention system working characteristics..... | 8 |
| 6.2 | Sensors..... | 10 |
| 6.3 | Overfill prevention controller characteristics | 11 |
| 6.4 | Cable, plug and socket interface | 12 |
| 7 | Testing..... | 13 |
| 7.1 | General..... | 13 |
| 7.2 | Type tests | 13 |
| 7.3 | Production tests..... | 14 |
| 8 | Safety integrity level (SIL)..... | 14 |
| 9 | Marking..... | 15 |
| 10 | Installation, operation and maintenance instructions..... | 15 |
| Annex A (normative) Electrical specifications | | 16 |
| Bibliography..... | | 34 |

European foreword

This document (EN 13922:2020) has been prepared by Technical Committee CEN/TC 296 “Tanks for the transport of dangerous goods”, 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 August 2020, and conflicting national standards shall be withdrawn at the latest by February 2022.

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

This document supersedes EN 13922:2011.

In comparison with the 2011 edition, the following fundamental changes were made:

- safety integrity level (SIL) added;
- requirements and tests for electromagnetic compatibility (EMC) revised;
- temperature for the sensors extended to +60 °C;
- electrical requirements in 6.3.7 expanded for clarification;
- waveform signal changed to waveform pulse throughout the standard;
- Annex A tables and figures revised to reflect installed base;
- the word "peak" was added in Table A.3 before "sensor current" only for clarification;
- referred standards updated.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

SS-EN 13922:2020 (E)

Introduction

The overfill prevention system prevents the maximum filling level of a compartment of a tank-vehicle from being exceeded by interrupting the filling operation on the loading site.

It is not the function of an overfill prevention system to prevent volume or weight overloading. The function of the overfill prevention system is the final means of containing the loaded product within a compartment and preventing a dangerous condition. It is therefore of critical importance that all components have a high degree of reliability and that all European gantries provide a compatible system with the tank-vehicles.

Not all the components of an overfill prevention system are necessarily supplied by one manufacturer but may include cross-compatible parts supplied by different manufacturers/suppliers. However, cross-compatibility does not mean interchangeability.

1 Scope

This document specifies the following points regarding the minimum requirements for an overfill prevention system:

- functions;
- major components;
- characteristics;
- test methods.

This document is applicable to overfill prevention systems for liquid fuels having a flash point up to but not exceeding 100 °C, excluding liquefied petroleum gas (LPG).

NOTE Vapour path detection is not part of this standard but can be provided as an option.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 590, *Automotive fuels - Diesel - Requirements and test methods*

EN 60079-0, *Explosive atmospheres - Part 0: Equipment - General requirements (IEC 60079-0)*

EN 60079-11, *Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" (IEC 60079-11)*

EN 60079-14, *Explosive atmospheres - Part 14: Electrical installations design, selection and erection (IEC 60079-14)*

EN 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3)*

EN 61000-6-4, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments (IEC 61000-6-4)*

EN 61508-1, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements (IEC 61508-1)*

EN 61511-1, *Functional safety - Safety instrumented systems for the process industry sector — Part 1: Framework, definitions, system, hardware and application programming Requirements (IEC 61511-1)*

SS-EN 13922:2020 (E)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

**3.1
overflow prevention system**
sensors or sensor circuits, interface plug/socket, overflow prevention controller and all connecting wiring and cables

**3.2
cross-compatibility**
ability of one part of the overflow prevention system to be able to work safely and satisfactorily with another part of the overflow prevention system although the parts are supplied by different manufacturers

**3.3
dry sensor**
state of the sensor when not immersed in liquid

**3.4
effective cycle time**
period taken for the overflow prevention system to identify a fault condition and switch to a non-permissive state

**3.5
fail-safe**
switching to a non-permissive state if any single component failure in the overflow prevention system renders the overflow prevention system unable to detect an overflow or loss of earth connection

**3.6
five-wire system**
system which uses five wire interface signals for liquid level detection

**3.7
gantry control system**
system which controls the loading of product into the tank-vehicle

**3.8
gantry control system reaction time**
period commencing when the overflow prevention controller's output changes to non-permissive state and ending with the cessation of all product flow after the closure of the gantry control valve

**3.9
interoperable**
ability of different parts of the overflow prevention system to operate together, and a functional aspect of cross-compatibility

3.10

warm-up time

period to switch to a permissive state after plug connection is made to a tank-vehicle socket with no sensor immersed in liquid

3.11

non-permissive

output state of the overflow prevention controller which disables liquid flow

3.12

overflow prevention controller

device mounted at the gantry which connects to the tank-vehicle and which provides a permissive signal or non-permissive signal to the gantry control system

3.13

overflow prevention system response time

period commencing when a sensor becomes wet and ending when the controller output switches to non-permissive signal

3.14

permissive

output state of the overflow prevention controller which enables liquid flow

3.15

self-checking

automatic and continuous checking of the integrity of an overflow prevention system's components to verify its ability to perform its minimum functions

3.16

sensor

device and any associated circuit mounted on or in a tank-vehicle's compartment and connected to interface socket which provides the wet or dry signal to the overflow prevention controller

Note 1 to entry: Wet signal includes all other conditions than the dry signal.

3.17

sensor circuit

sensor not directly wired to the interface socket but using intermediate components/electronics to transfer the sensor output to the interface socket

3.18

two-wire system

system which uses two-wire interface signals for liquid level detection

3.19

wet sensor

state of a sensor just sufficiently submerged in liquid to initiate a change in signal output from dry to wet