

This document is a review generated by EVS

Tanks for the transport of dangerous goods - Transport tank equipment for overfill prevention devices for static tanks

## ESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16657:2016 sisaldab Euroopa standardi EN 16657:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 16657:2016 consists of the English text of the European standard EN 16657:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 08.06.2016.	Date of Availability of the European standard is 08.06.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 13.300, 23.020.20

Standardite reproduutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 16657

June 2016

ICS 13.300; 23.020.20

Supersedes EN 13616:2004

English Version

Tanks for the transport of dangerous goods - Transport  
tank equipment for overfill prevention devices for static  
tanks

Citernes destinées au transport de matières  
dangereuses - Dispositifs limiteurs de remplissage  
pour réservoirs statiques à bord de véhicules-citernes

Tanks für die Beförderung gefährlicher Güter -  
Transporttankausrüstung für Überfüllsicherungen für  
ortsfeste Tanks

This European Standard was approved by CEN on 6 June 2015.

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, 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
<b>European foreword.....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
<b>1 Scope.....</b>	<b>5</b>
<b>2 Normative references.....</b>	<b>5</b>
<b>3 Terms, definitions and abbreviated terms .....</b>	<b>5</b>
<b>3.1 Terms and definitions .....</b>	<b>5</b>
<b>3.2 Abbreviated terms.....</b>	<b>6</b>
<b>4 Requirements .....</b>	<b>6</b>
<b>4.1 Effectiveness .....</b>	<b>6</b>
<b>4.2 Construction.....</b>	<b>6</b>
<b>5 Overfill prevention device .....</b>	<b>6</b>
<b>5.1 Equipment on the tank.....</b>	<b>6</b>
<b>5.2 Equipment on the tank vehicle.....</b>	<b>6</b>
<b>5.3 EMC requirements .....</b>	<b>6</b>
<b>5.4 Working characteristics .....</b>	<b>7</b>
<b>5.4.1 General.....</b>	<b>7</b>
<b>5.4.2 Response time .....</b>	<b>7</b>
<b>5.4.3 Current interface.....</b>	<b>7</b>
<b>5.4.4 Operating conditions .....</b>	<b>9</b>
<b>5.4.5 Current interface – Auxiliary contact.....</b>	<b>10</b>
<b>5.4.6 Binary/Digital Interface .....</b>	<b>11</b>
<b>6 Test.....</b>	<b>11</b>
<b>6.1 Type test.....</b>	<b>11</b>
<b>6.1.1 General.....</b>	<b>11</b>
<b>6.1.2 Performance tests – controller.....</b>	<b>12</b>
<b>6.1.3 Fail-safe test .....</b>	<b>13</b>
<b>6.1.4 EMC test .....</b>	<b>13</b>
<b>6.2 Manufacturers production test .....</b>	<b>13</b>
<b>6.2.1 General.....</b>	<b>13</b>
<b>6.2.2 Controller response.....</b>	<b>14</b>
<b>6.2.3 Current interface.....</b>	<b>14</b>
<b>6.3 Binary/Digital interface.....</b>	<b>15</b>
<b>6.3.1 General.....</b>	<b>15</b>
<b>6.3.2 Sensor and digital interface .....</b>	<b>15</b>
<b>6.3.3 PRD .....</b>	<b>15</b>
<b>7 Marking.....</b>	<b>15</b>

## European foreword

This document (EN 16657:2016) 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 December 2016 and conflicting national standards shall be withdrawn at the latest by 2017-07-11.

This document, together with EN 13616-1 and EN 13616-2, supersedes EN 13616:2004.

With reference to EN 13616:2004, the following significant changes have been made:

- splitting of EN 13616:2004; the new EN 13616, under the general title *Overfill prevention devices for static tanks for liquid fuels — Requirements and test/assessment methods*, will consist of the following parts:
  - *Part 1: Overfill prevention devices with closure device;*
  - *Part 2: Overfill prevention devices without closure device.*
- reference to EN 14116;
- explosion-technical parameters updated;
- the requirements for the equipment of the overfill prevention devices without closure device on the static tank are fixed in EN 13616-2;
- the requirements for the equipment of the overfill prevention devices without closure device on the tank vehicle are fixed in EN 16657.

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, 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning hose communication methods given in 5.4.6.

CEN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured CEN that he/she is willing to negotiate licences either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with CEN. Information may be obtained from:

FMC Technologies/F.A. Sening GmbH  
Regentstrasse 1  
D-25474 Ellerbek  
Germany

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

CEN and CENELEC (<http://www.cencenelec.eu/ipr/Pages/default.aspx>) maintain online lists of patents relevant to their standards. Users are encouraged to consult the lists for the most up to date information concerning patents.

## 1 Scope

This European Standard specifies the minimum performance and construction requirements for overfill prevention controllers located on the tank vehicle.

This European Standard applies to overfill prevention controllers for liquid fuels, having a flash point up to but not exceeding 100 °C.

The requirements apply to overfill prevention controllers suitable for use at ambient temperatures in the range from -25 °C to +60 °C, and subject to normal operational pressure variations.

## 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 13616-2:2016, *Overfill prevention devices for static tanks for liquid fuels — Part 2: Overfill prevention devices without a closure device*

EN 14116, *Tanks for transport of dangerous goods — Digital interface for the product recognition devices for liquid fuels*

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

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

EN 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1)*

ISO 7637-2, *Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only*

## 3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms, definitions and abbreviated terms given in EN 13616-2 and the following apply.

### 3.1 Terms and definitions

#### 3.1.1

#### **overfill prevention controller controller**

installed on the tank vehicle, connects to sensors mounted in or on the tank, and provides an output