VEELDATUD MAAGAASI PAIGALDISED JA SEADMED. MAISMAAL ASUVATE 5-TONNISE KUNI 200-TONNISE MAHUTAVUSEGA PAIGALDISTE PROJEKTEERIMINE

Installations and equipment for liquefied natural gas - Design of onshore installations with a storage capacity between 5 t and 200 t

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13645:2002 sisaldab Euroopa standardi EN 13645:2001 ingliskeelset teksti.	This Estonian standard EVS-EN 13645:2002 consists of the English text of the European standard EN 13645:2001.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 12.12.2001.	Date of Availability of the European standard is 12.12.2001.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

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English version

Installations and equipment for liquefied natural gas - Design of onshore installations with a storage capacity between 5 t and 200 t

Installations et équipements de gaz naturel liquéfié - Conception des installations terrestres d'une capacité de stockage comprise entre 5 t et 200 t

Anlagen und Ausrüstung für Flüssigerdgas - Auslegung von landseitigen Anlagen mit einer Lagerkapazität zwischen 5 t und 200 t

This European Standard was approved by CEN on 15 November 2001.

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 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 Management Centre 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.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 282 "Installation and equipment for LNG", 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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

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.

Annexes A, B and C are informative.

Introduction

The objective of this standard is to give functional guidelines for LNG facilities with a total storage capacity between 5 t and 200 t. It recommends procedures and practices which will result in safe and environmentally acceptable design, construction and operation of LNG plants.

This standard is not applicable to existing installations, but its application is recommended when major modifications are considered.

1 Scope

This European Standard specifies requirements for the design and construction of onshore stationary liquefied natural gas (LNG) installations with a total storage capacity between 5 t and 200 t. This standard is not applicable to liquefaction process facilities based on hydrocarbon refrigerants. Larger installations are treated according to EN 1473:1997.

If other dangerous substances are present in the facility, the aforementioned storage capacity thresholds may be reduced.

NOTE It is essential that the designer refer to local regulation to determine the new values.

The installations to which this standard is applicable include the following:

— LNG satellite plants. The LNG may be supplied by road tankers, barge or rail carriers. After storage, LNG is vaporized and sent out to consumers;

— LNG gas fuelling stations for vehicles.

The installation is limited from the gas inlet or the loading LNG area to the gas outlet or the unloading LNG area. Filling systems are not covered here.

For the purposes of clause 4 «Environment Impact» and clause 5 «Safety Plan», this standard applies where LNG storage capacity exceeds the threshold specified in the local regulation. If this value is not available, a threshold of 50 t is recommended.

It is recalled that, in any case, local regulations prevail.

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 (including amendments).

EN 1127-1, *Explosive atmospheres- Explosion prevention and protection- Basic concepts and methodology.*

EN 1160:1996, *Installation and equipment for liquefied natural gas - General characteristics of liquified natural gas.*

EN 1473:1997, *Installation and equipment for liquefied natural gas - Design of onshore installations.*

EN 12066, *Installation and equipment for liquefied natural gas - Testing of insulation linings for liquefied natural gas retention bunds.*

EN 60079-10, *Electrical apparatus for explosive gas atmospheres- Part 10: Classification of hazardous areas (IEC 60079-10:1995).*

ENV 1991-2-2, EUROCODE 1 *Basis of design and actions on structures - Part 2-2: Actions on structures - Actions on structures exposed to fire.*

ENV 1992-1-1, EUROCODE 2 *Design of concrete structures - Part 1-1: General rules and rules for buildings.*

ENV 1992-1-2, EUROCODE 2 *Design of concrete structures - Part 1-2: General rules - Structural fire design.*

ENV 1993-1-1, EUROCODE 3 *Design of steel structures - Part 1-1: General rules and rules for buildings.*

ENV 1993-1-2, EUROCODE 3 *Design of steel structures - Part 1-2: General rules - Structural fire design.*

ENV 1994-1-1, EUROCODE 4 *Design of composite steel and concrete structures - Part 1-1: General rules and rules for buildings.*

ENV 1994-1-2, EUROCODE 4 *Design of composite steel and concrete structures - Part 1-2: General rules - Structural fire design (including Technical Corrigendum 1:1995).*

3 Terms and definitions

For the purposes of this European Standard, the definitions given in EN 1160:1996 and EN 1473:1997, and the following terms and definitions apply.

3.1
above ground vessel
vessel of which all or part is exposed above ground level

3.2
boil-off gas
gas resulting from evaporation of LNG near its equilibrium state

3.3
emergency shutdown
a system that safely and effectively stops the whole plant or individual units when an incident occurs

3.4
flash gas
gas resulting from sudden evaporation of LNG out of equilibrium condition

3.5
impounding area
an area defined through the use of dykes or topography at the site for the purpose of containing any accidental spill of LNG

3.6
LNG gas fuelling station
installation including an LNG storage which supplies vehicles with LNG or gas from vaporized LNG

3.7
loading area
area where LNG is loaded from storage vessels to transport vessels when the plant supplies LNG

3.8
local regulation
set of rules, laws, national agreements, international conventions which apply to a site

3.9
operating personnel
any person who is authorised to act on the control of the plant, remotely or locally

NOTE It can include the drivers of LNG carriers who supply the plant with LNG. In the case of fuelling stations for vehicles, drivers of these vehicles are not included unless it is specified in the management plan of the installation.

3.10
plant or site
area inside of which public access is unauthorised

3.11
underground vessel
vessel which is completely buried below the general ground level of the facility

3.12
unloading area
area where LNG is unloaded from transport vessels to storage vessels when the plant is supplied with LNG

3.13
validated model
model whose effectiveness has been demonstrated by LNG industrial tests through clearly identified procedures