BS EN 1473:2016

BSI Standards Publication

Installation and equipment for liquefied natural gas — Design of onshore installations

bsi.

National foreword

This British Standard is the UK implementation of EN 1473:2016. It supersedes BS EN 1473:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GSE/38, Installation and equipment for LNG.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 85804 8

ICS 75.200

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2016.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1473

May 2016

ICS 75.200

Supersedes EN 1473:2007

English Version

Installation and equipment for liquefied natural gas - Design of onshore installations

Installations et équipements de gaz naturel liquéfié - Conception des installations terrestres

Anlagen und Ausrüstung für Flüssigerdgas - Auslegung von landseitigen Anlagen

This European Standard was approved by CEN on 4 March 2016.

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

Ref. No. EN 1473:2016 E

Contents

Page

European foreword

This document (EN 1473:2016) 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 November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

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 1473:2007.

In comparison with EN 1473:2007, the following changes have been made:

— the scope definition has been modified to cover interfaces and limits with floating solutions, plants refurbishing, renovation and expansion, and to better complement EN 14620;

— some requirements were revisited, such as tank containment types, new air vaporizer and sections that were subject to questions from the 2007 version;

— terms and definitions were adjusted to cope with new market development;

— the normative references were updated.

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 objective of this European Standard is to give functional guidelines for on-shore LNG installations. It recommends procedures and practices that will result in safe and environmentally acceptable design, construction and operation of LNG plants.

It need not be applied retrospectively, but application is recommended when major modifications of existing installations are being considered.

This standard is also recommended for debottlenecking, revamping and plant life extension in the limits that will be defined by the local Authorities. The appliance of the European Directives to the existing facilities is part of the limits to be defined together with the local Authorities.

In case of plant expansion, this European Standard is applicable for the new facilities. The application of these recommendations for the tie-ins and connections to the existing facilities will be defined by the local Authorities. The limits of such application should consider the practicality of such appliance. In the same way the limits of the European Directives appliance will be accurately defined with the local Authorities.

1 Scope

This European Standard gives guidelines for the design, construction and operation of all onshore liquefied natural gas (LNG) installations for the liquefaction, storage, vaporization, transfer and handling of LNG.

This European Standard is valid for plants with LNG storage at pressure lower than 0,5 barg and capacity above 200 t and for the following plant types:

— LNG liquefaction installations (plant), between the designated gas inlet boundary limit, and the outlet boundary limit which is usually the ship manifold and/or truck delivery station when applicable; feed gas can be from gas field, associated gas from oil field, piped gas from transportation grid or from renewables;

— LNG regasification installations (plant), between the ship manifold and the designated gas outlet boundary limit;

— peak-shaving plants, between designated gas inlet and outlet boundary limits;

— the fixed part of LNG bunkering station.

A short description of each of these installations is given in Annex G.

Floating solutions (FPSO, FSRU, SRV), whether off-shore or nearby shore, are not covered by this European Standard even if some concepts, principles or recommendations could be applied. However, in case of berthed FSRU with LNG transfer across the jetty, the following recommendations apply for the jetty and topside facilities if the jetty is located within 3 000 m from the shore line.

In case of FSU type solution, the on-shore part is covered by these standard recommendations.

This standard is not applicable for installations specifically referred or covered by other standards, e.g. LNG fuelling stations, LNG road or rail tankers and LNG bunkering vessels.

The plants with a storage inventory from 50 t up to 200 t with tanks at a pressure higher than 0,5 barg are covered by EN 13645.

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 809, *Pumps and pump units for liquids — Common safety requirements*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN-designated — Part 1: Steel flanges*

EN 1127-1, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 1474 (all parts) *Installation and equipment for liquefied natural gas — Design and testing of loading/unloading arms*

EN 1514-1, *Flanges and their joints — Dimensions of gaskets for PN-designated flanges — Part 1: Non-metallic flat gaskets with or without inserts*

EN 1591 (all parts), *Flanges and their joints — Design rules for gasketed circular flange connections*