



NSAI
Standards

Irish Standard
I.S. EN 1474-1:2008

Installation and equipment for liquefied natural gas - Design and testing of marine transfer systems - Part 1: Design and testing of transfer arms

I.S. EN 1474-1:2008

Incorporating amendments/corrigenda issued since publication:

This document replaces:
I.S. EN 1474:1998

This document is based on:
EN 1474-1:2008
EN 1474:1997

Published:
3 December, 2008
8 May, 1998

This document was published
under the authority of the NSAI
and comes into effect on:
2 February, 2009

ICS number:
75.200

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Price Code:
U

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 1474-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2008

ICS 75.200

Supersedes EN 1474:1997

English Version

Installation and equipment for liquefied natural gas - Design and testing of marine transfer systems - Part 1: Design and testing of transfer arms

Installations et équipements relatifs au gaz naturel liquéfié -
Conception et essais des systèmes de transfert marins -
Partie 1: Conception et essais des bras de
charge/décharge

Anlagen und Ausrüstung für Flüssigerdgas - Auslegung und
Prüfung von Schiffsübergabesystemen - Teil 1: Auslegung
und Prüfung von Verladearmen

This European Standard was approved by CEN on 1 November 2008.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms, definitions and abbreviations	7
4 Design of the arms.....	15
4.1 Definition of the length and the configuration of the arms, arms description.....	15
4.1.1 General.....	15
4.1.2 Balancing.....	16
4.1.3 Arms dimensions and clearances.....	16
4.2 Design basis	16
4.2.1 Product line diameter and product data.....	16
4.2.2 Material and grades	17
4.3 Swivel joints	21
4.3.1 General.....	21
4.3.2 Product sealing arrangement.....	21
4.3.3 Bearing system	21
4.3.4 External sealing arrangement	21
4.3.5 Design	21
4.4 Structural bearings	22
4.4.1 Cyclic movements	22
4.4.2 Installation of structural bearings	22
4.4.3 Protection of structural bearings	22
4.4.4 Grease sampling point	23
4.5 Accessories	23
4.5.1 Adjustable support (jack).....	23
4.5.2 Nitrogen injection line	23
4.5.3 Storage locking device	23
4.5.4 Ladders and platforms	23
4.5.5 Liquid nitrogen line.....	24
4.5.6 Thermal insulation	24
4.6 Pipework and fitting.....	24
4.7 Welding	24
4.7.1 Qualification	24
4.7.2 Filler metals	24
4.8 Corrosion protection, fire proofing and embrittlement protection.....	24
4.8.1 Corrosion protection	24
4.8.2 Embrittlement protection	25
4.9 Maintenance	25
5 Safety systems.....	25
5.1 General.....	25
5.2 Two stage alarm and shut down system.....	26
5.2.1 First stage	26
5.2.2 Second stage	26
5.3 Monitoring and alarm systems.....	26
5.3.1 Arm positioning alarms system	26
5.3.2 Arm constant position monitoring system (CPMS)	26
5.3.3 Pressure and hydraulic level alarm	26
5.4 Definition of alarm envelopes	27
5.5 Safety devices	27
5.5.1 General.....	27

5.5.2	Safety devices on emergency release system (ERS)	27
5.5.3	Fire safety requirements	27
5.5.4	Electrical safety requirements	28
5.5.5	Failure of electrical power supply	28
5.5.6	Stray current protectors	29
5.5.7	Bonding	29
6	Connection with the ship.....	29
6.1	General	29
6.2	QCDC body	30
6.3	QCDC system.....	30
7	Hydraulic and electric control systems	31
7.1	General	31
7.2	Arms operations	31
7.3	Hydraulic components.....	32
7.4	Electric components	33
7.5	Testing of control systems.....	33
7.6	Remote control	33
7.7	Jetty external equipment	33
8	Inspection and tests.....	34
8.1	General	34
8.2	Prototype testing	34
8.2.1	Swivels.....	34
8.2.2	ERS	36
8.2.3	QCDC	37
8.3	Manufacturing	39
8.3.1	Materials	39
8.3.2	Non destructive testing.....	39
8.3.3	Insulation flange (stray current protector).....	39
8.4	Factory acceptance tests.....	40
8.4.1	Swivel.....	40
8.4.2	Structural bearing.....	40
8.4.3	ERS	41
8.4.4	QCDC	41
8.4.5	Insulation flange (stray current protector).....	41
8.4.6	Hydraulic circuit test	42
8.4.7	Transfer arm assembly test.....	42
8.4.8	Site acceptance tests	43
9	Quality assurance and control	44
9.1	Quality system	44
9.2	Quality plan	44
10	Required documentation	45
10.1	Tender documentation	45
10.2	Contract documentation	45
	Annex A (informative) Materials	46
	Annex B (informative) Constant Position Monitoring System (CPMS)	47
	Annex C (informative) Suggestions for arms alarms setting and ESD/ERS activation.....	48
	Annex D (normative) Tables D.1 to D.17 and Figures D.1 to D.4	49
	Annex E (informative) Figures E.1 to E.3	71
	Bibliography.....	74

Foreword

This document (EN 1474-1:2008) 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 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

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 1474:1997.

This European Standard consists of 3 parts:

- EN 1474-1, *Installation and equipment for liquefied natural gas — Design and testing of marine transfer systems — Part 1: Design and testing of transfer arms*
- EN 1474-2, *Installation and equipment for liquefied natural gas — Design and testing of marine transfer systems — Part 2: Design and testing of transfer hoses*
- EN 1474-3, *Installation and equipment for liquefied natural gas — Design and testing of marine transfer systems — Part 3: Offshore transfer systems*

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- Looking for additional Standards? Visit Intertek Inform Infostore
- Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation