

STN	Plniace stanice na zemný plyn Konektor na vykladanie LNG	STN EN 17921 30 2327
------------	---	--

Natural gas fuelling stations - LNG unloading connector

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/24

Obsahuje: EN 17921:2024

138611



EUROPEAN STANDARD

EN 17921

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2024

ICS 43.080.10; 75.200

English Version

Natural gas fuelling stations - LNG unloading connector

Stations-service de gaz naturel - Connecteur de
déchargement de GNL

Gasfüllanlagen - LNG-Entladeanschluss

This European Standard was approved by CEN on 8 January 2024.

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, Türkiye 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

EN 17921:2024 (E)

Contents	Page
European foreword	4
Introduction	5
1 Scope.....	6
2 Normative references.....	7
3 Terms and definitions.....	8
4 Functional requirements	9
4.1 General requirement.....	9
4.2 Functional description of the LNG unloading connector.....	10
4.2.1 General.....	10
4.2.2 Dry connector.....	10
4.2.3 Protective cap.....	10
4.2.4 Type of mounting.....	10
4.2.5 Positive locking	10
4.2.6 Safe disconnect	10
4.2.7 (Internal) Check valve.....	10
4.2.8 Venting and depressurization.....	11
4.2.9 Electrical conductivity	11
4.2.10 Spillage volume.....	11
5 Technical description of LNG unloading connector	11
5.1 Materials	11
5.1.1 General.....	11
5.1.2 LNG unloading connector.....	11
5.1.3 Corrosion protection	11
5.2 Pressure rating.....	11
5.2.1 Maximum allowable working pressure (MAWP)	11
5.2.2 Maximum working pressure.....	11
5.2.3 Design cycle life;.....	11
5.3 LNG unloading connector mounting	12
5.4 LNG unloading connector working temperature range.....	12
5.4.1 General.....	12
5.4.2 Material of the bodies of the LNG unloading receptacle and of the LNG unloading nozzle	12
6 Design of the LNG unloading connector.....	13
7 Tests requirements	14
7.1 General requirements.....	14
7.1.1 General.....	14
7.1.2 Ambient test conditions	14
7.1.3 Cryogenic test conditions.....	15
7.2 Shell tightness at ambient temperature.....	15
7.3 Shell strength at ambient temperature	15
7.4 Seat tightness at ambient temperature	15
7.5 Obturator strength at ambient temperature against atmosphere	15
7.6 Shell tightness at minimum working temperature	16
7.7 Seat tightness at minimum working temperature.....	16
7.7.1 General.....	16
7.7.2 Test arrangement for LNG unloading nozzle (Figure 3)	16

7.7.3	Test arrangement for LNG unloading receptacle (Figure 4)	17
7.8	Burst test	17
7.9	Operation test at minimum working temperature	17
7.10	Endurance test	18
7.11	Bending test	18
7.12	Drop test	18
7.13	Tensile force	19
7.13.1	Manual force in warm conditions	19
7.13.2	Manual force at cold conditions under frost	19
7.14	Corrosion resistance	19
8	Safety requirements	20
9	Maintenance	20
	Bibliography	21

EN 17921:2024 (E)**European foreword**

This document (EN 17921:2024) has been prepared by Technical Committee CEN/TC 326 “Natural gas vehicles - Fuelling and operation”, the secretariat of which is held by TSE.

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 September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.

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.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

Introduction

The transport of LNG over the road in Europa is organized through ADR regulations. This European Agreement concerning the International Carriage of Dangerous Goods by Road specifies the safety procedures of the road tanker and driver. The design, construction, operation, maintenance and inspection including equipment safety and control devices for LNG fuelling stations are described in EN ISO 16924:2016 “Natural gas fuelling stations — LNG stations for fuelling vehicles”.

This document describes a harmonized unloading connector for LNG road tanker at LNG fuelling stations.

While LNG is also transported by rail, European regulations are organized through the International Carriage of Dangerous Goods by Rail (RID). The same configuration as specified by this document, can be utilized for LNG RID applications.

EN 17921:2024 (E)**1 Scope**

This document specifies a harmonized unloading connector for LNG road tanker at LNG fuelling stations. This document is also applicable to LNG RID applications. While LNG is also transported by rail, European regulations are organized through the International Carriage of Dangerous Goods by Rail (RID). The same configuration as defined by this document, can be utilized. This document includes requirements for (at least):

- functional description of the LNG unloading receptacle and LNG unloading nozzle;
- technical layout description of the LNG unloading receptacle.

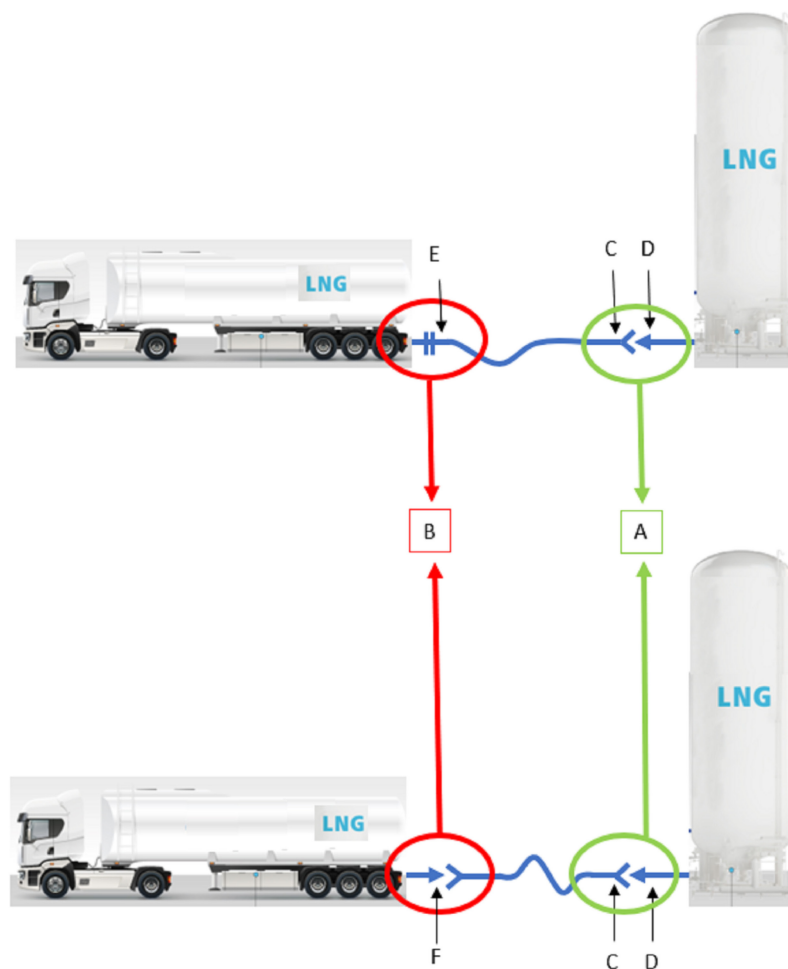
The technical layout description of the LNG unloading nozzle is not part of this document.

The basic functional requirement of the LNG unloading connector are as follows:

- to prevent leakage of methane during operation and in particular during disconnecting;
- easy handling, no spillage and purging with nitrogen during disconnecting.

The loading connector between the LNG road tanker and the LNG terminal is not covered by this document.

See Figure 1.



Key

A	scope of the standard
B	not part of the scope of the standard
C	LNG unloading nozzle at delivery point
D	LNG unloading receptacle at receiving tank
E	unloading hose fixed to the trailer
F	flexible unloading hose

Figure 1 — Scope of the document

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 13480-1:2017, *Metallic industrial piping — Part 1: General*

EN 12266-1:2012, *Industrial valves — Testing of metallic valves — Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements*

EN 12516-1:2014+A1:2018, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

EN 17921:2024 (E)

EN 12516-2:2014+A1:2021, *Industrial valves — Shell design strength — Part 2: Calculation method for steel valve shells*

EN ISO 9227:2022, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2022)*

ISO 16903:2015, *Petroleum and natural gas industries — Characteristics of LNG, influencing the design, and material selection*

ISO 16924:2016, *Natural gas fuelling stations — LNG stations for fuelling vehicles*

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 5208:2015, *Industrial valves — Pressure testing of metallic valves*

ISO 6708:1995, *Pipework components — Definition and selection of DN (nominal size)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN