



**CSA  
Group**

**CSA/ANSI LNG 3.16-2018**  
(ISO 12614-16:2014, MOD)  
National Standard of Canada



**CSA/ANSI LNG 3.16-2018**  
**Road vehicles — Liquefied natural gas (LNG) fuel  
system components — Part 16: Heat exchanger-  
vaporizer**  
(ISO 12614-16:2014, MOD)



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# National Standard of Canada

CSA/ANSI LNG 3.16-2018

## Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 16: Heat exchanger-vaporizer (ISO 12614-16:2014, MOD)

Prepared by  
International Organization for Standardization



Reviewed by



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# CSA/ANSI LNG 3.16-2018

## **Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 16: Heat exchanger–vaporizer (ISO 12614-16:2014, MOD)**

### **CSA Preface**

This is the first edition of CSA/ANSI LNG 3.16, *Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 16: Heat exchanger–vaporizer*, which is an adoption, with North American deviations, of the identically titled ISO (International Organization for Standardization) Standard 12614-16 (first edition, 2014-07-01). At the time of publication, ISO 12614-16:2014 is available from ISO in English only. CSA Group will publish the French version when it becomes available from ISO.

For brevity, this Standard will be referred to as “CSA/ANSI LNG 3.16” throughout.

The North American deviations are intended to

- a) correct inaccuracies; and
- b) replace references to ISO and IEC Standards with references to U.S. and CSA Group Standards, where applicable.

This Standard is intended to be used in conjunction with CSA/ANSI LNG 3.1-2018, *Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 1: General requirements and definitions* (adopted ISO 12614-1:2014, with Canadian deviations) and CSA/ANSI LNG 3.2-2018, *Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 2: Performance and general test methods* (adopted ISO 12614-2:2014, with Canadian deviations).

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was reviewed for North American adoption by the CSA Subcommittee on Liquefied Natural Gas Vehicle Fueling Connection Devices, LNG 1, under the jurisdiction of the CSA Technical Committee on Natural Gas Transportation and the CSA Strategic Steering Committee on Transportation. It has been formally approved by the Technical Committee and by the Interprovincial Gas Advisory Council.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group. This Standard was approved by the American National Standards Institute (ANSI) as an American National Standard on June 1, 2018.

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- a) Standard designation (number);
- b) relevant clause, table, and/or figure number;
- c) wording of the proposed change; and
- d) rationale for the change.

CSA Group acknowledges that the adoption of this Standard was made possible, in part, by the financial support of



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# North American deviations

The following deviations are intended to meet local product requirements and to align with energy efficiency requirements of relevant Canadian regulators.

International Standard ISO 12614-16:2014 (first edition) forms the basis for CSA/ANSI LNG 3.16, which contains the following deviations in addition to those shown in CSA/ANSI LNG 3.1-2018 and CSA/ANSI LNG 3.2-2018.

*[Replace all references to “ISO 12614-1” with “CSA/ANSI LNG 3.1”]*

*[Replace all references to “ISO 12614-2” with “CSA/ANSI LNG 3.2”]*

## 1 Scope

*[Add the following]*

NOTE 3A For North American application, all references to working pressure are considered to be equivalent to maximum allowable working pressure (MAWP).

## 2 Normative references

*[Add the following]*

Where reference is made to CSA Group publications, such reference shall be considered to refer to the latest edition and all amendments published to that edition. This Standard refers to the following publications, and the years shown indicate the latest editions available at the time of printing.

The following National Standards of Canada, published by CSA Group, are adoptions of ISO Standards. The requirements of these CSA Group Standards shall take precedence over the International Standards on which they are based. Any reference within CSA/ANSI LNG 3.16 to the International Standard shall be replaced by a reference to the equivalent Canadian Standard. Any reference to International Standards that are adopted as National Standards of Canada subsequent to the publication of CSA/ANSI LNG 3.16 shall be replaced by the relevant National Standard of Canada.

### CSA Group

CSA/ANSI LNG 3.1-2018

*Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 1: General requirements and definitions*

*[Replaces ISO 12614-1:2014]*

CSA/ANSI LNG 3.2-2018

*Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 2: Performance and general test methods*

*[Replaces ISO 12614-2:2014]*

### 3 Terms and definitions

*[Add the following definition]*

#### **vaporizer design pressure**

pressure equal to or higher than the maximum pump discharge pressure or the maximum allowable working pressure (MAWP) of the LNG tank, whichever is greater

### 4 Marking

*[Add the following item to the list in the first paragraph]*

dA) the serial number or date code.

*[Delete Item f) from the list in the second paragraph]*

### 5 Construction and assembly

*[Replace “heat exchanger” with “heat exchanger-vaporizer”]*

### 6 Test

#### **Table 1 – Tests applicable**

*[In the second row, “Leakage”, delete the specific test requirement in the last column]*

*[Delete the fifth row, “Continued operation”]*

*[Add the following note]*

Note 1A: Test the natural gas space during the leakage test.

#### **6.2 Hydrostatic strength**

*[Replace “heat exchanger” with “heat exchanger-vaporizer”]*

*[Replace the second paragraph with the following]*

Test pressure shall be 2.5 times the vaporizer design pressure.

#### **6.3 Leakage**

*[Delete this Clause]*

#### **6.4 Continued operation**

*[Delete this Clause]*

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**Road vehicles — Liquefied natural gas  
(LNG) fuel system components —**

**Part 16:  
Heat exchanger - vaporizer**

*Véhicules routiers — Équipements pour véhicules utilisant le gaz  
naturel liquéfié (GNL) comme combustible —*

*Partie 16: Échangeur de chaleur - vaporisateur*





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