



# DRAFT INTERNATIONAL STANDARD ISO/DIS 12614-8

ISO/TC 22/SC 25

Secretariat: CUNA

Voting begins on  
2013-01-16

Voting terminates on  
2013-04-16

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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

### Part 8: Excess flow valve

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

*Partie 8: Valve de limitation de débit*

ICS 43.060.40

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/6501d93a-84ed-46c3-8b06-46b66a84f653/iso-12614-8-2014>

### Copyright notice

This ISO document is a Draft International Standard and is copyright-protected by ISO. Except as permitted under the applicable laws of the user's country, neither this ISO draft nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission being secured.

Requests for permission to reproduce should be addressed to either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Reproduction may be subject to royalty payments or a licensing agreement.

Violators may be prosecuted.

**Contents**

Page

Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Marking .....	2
5 Construction and assembly .....	3
6 Test .....	3
6.1 Applicability .....	3
6.2 Hydrostatic strength .....	4
6.3 Leakage .....	4
6.4 Excess torque resistance .....	4
6.5 Bending moment .....	4
6.6 Continued operation .....	4
6.7 Operation .....	4

**DR**  
**AW**  
**ST**  
**AND**  
**PRE**  
**VIEW**  
 iTeh STANDARD PREVIEW  
 (standards.iteh.ai)  
 Full standard:  
<https://standards.iteh.ai/catalog/standards/sis/65214e3a-84ed-46c3-8b06-46b66a84f653/iso-12614-8-2014>



## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12614-8 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 25, *Vehicles using gaseous fuels*.

ISO 12614 consists of the following parts, under the general title *Road vehicles — Liquefied natural gas (LNG) fuel system components*:

- *Part 1: General requirements and definitions*
- *Part 2: Performance and general test methods*
- *Part 3: Check valve*
- *Part 4: Manual valve*
- *Part 5: Tank pressure gauge*
- *Part 6: Overpressure regulator*
- *Part 7: Pressure relief valve*
- *Part 8: Excess flow valve*
- *Part 9: Gas-tight housing and ventilation hose*
- *Part 10: Rigid fuel line in stainless steel*
- *Part 11: Fittings*
- *Part 12: Rigid fuel line in copper and its alloys*
- *Part 13: Pressure control regulator*
- *Part 14: Differential pressure fuel content gauge*

- *Part 15: Capacitance fuel content gauge*
- *Part 16: Heat exchanger – vaporizer*
- *Part 17: Natural gas detector*
- *Part 18: Gas temperature sensor*

DRAFT 2013

iTeh STANDARD PREVIEW  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/650149-5a-84ed-46c3-8b06-46b66a84f653/iso-12614-8-2014>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/6501d93a-84ed-46c3-8b06-46b66a84f653/iso-12614-8-2014>

# Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 8: Excess flow valve

## 1 Scope

This part of ISO 12614 specifies tests and requirements for the excess flow valve, a liquefied natural gas fuel system component intended for use on the types of motor vehicles defined in ISO 3833. This part of ISO 12614 is applicable to vehicles using natural gas in accordance with ISO 15403 (mono-fuel, bi-fuel or dual-fuel applications). It is not applicable to the following:

- a) fuel containers;
- b) stationary gas engines;
- c) container mounting hardware;
- d) electronic fuel management;
- e) refueling receptacles.

NOTE 1 It is recognized that miscellaneous components not specifically covered herein can be examined to meet the criteria of this part of ISO 12614 and tested according to the appropriate functional tests.

NOTE 2 All references to pressure in this part of ISO 12614 are to be considered gauge pressures unless otherwise specified.

NOTE 3 This part of ISO 12614 is based upon a working pressure for natural gas as a fuel of 1,6 MPa [16 bar<sup>1)</sup>]. Other working pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio). For example 2 MPa (20 bar) working pressure system will require pressures to be multiplied by 1,25

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 12614. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12614 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3833, *Road vehicles — Types — Terms and definitions.*

1) 1bar=0,1MPa=105Pa;1MPa=1N/mm<sup>2</sup>

ISO 12614-1, *Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 1: General requirements and definitions.*

ISO 12614-2, *Road vehicles — Liquefied natural gas (LNG) fuel system components — Part 2: Performance and general test methods.*

### 3 Terms and definitions

For the purposes of this part of ISO 12614, the terms and definitions given in ISO 12614-1 apply.

#### 3.1 internal excess flow valve

excess flow valve installed inside the cylinder or cylinder valve

#### 3.2 external excess flow valve

excess flow valve installed outside the cylinder or cylinder valve

#### 3.3 shut-off type excess flow valve

excess flow valve that stops flow when in the closed position

#### 3.4 flow-limiter type excess flow valve

excess flow valve that limits flow when activated

NOTE The device resets automatically when the excess flow condition is no longer present.

#### 3.5 activation

differential pressure flow or other condition specified by the manufacturer at which the excess flow valve is activated

### 4 Marking

Marking of the component shall provide sufficient information to allow the following to be traced:

- a) the manufacturer's or agent's name, trademark or symbol;
- b) the model designation (part number);
- c) the operating specifications (working pressure, temperature range, excess flow valve type, activation flow or  $\Delta P$ , Max flow when activated).

The following additional markings are recommended:

- d) the direction of flow (when necessary for correct installation);
- e) the type of fuel;
- f) electrical ratings (if applicable);
- g) the symbol of the certification agency;



- h) the type approval number;
- i) the serial number or date code;
- j) reference to this part of ISO 12614.

NOTE This information can be provided by a suitable identification code on at least one part of the component when it consists of more than one part.

## 5 Construction and assembly

The excess flow valve shall comply with the applicable provisions of ISO 12614-1 and ISO 12614-2, and with the tests specified in clause 6 of this part of ISO 12614.

## 6 Test

### 6.1 Applicability

There are many types of excess flow valves available. This part of ISO 12614 provides requirements for two different designs: internal and external excess flow valves. A valve of either design could be one of two different types: shut-off or flow-limiter. As excess flow valve designs vary, so will the tests required.

The function of an excess flow valve can be achieved in other ways. For example, instead of using a mechanical device, an electronic system can be adopted to ensure the closing or limiting of the gas flow from the cylinder in an accident.

The tests required to be carried out are indicated in Table 1.

Table 1 — Tests applicable

Test	Applicable	Test procedure as required by ISO 12614-2	Specific test requirements of this part of ISO 12614
Hydrostatic strength	X	X	X (see 6.2)
Leakage	X	X	X (see 6.3)
Excess torque resistance	X	X	X (see 6.4)
Bending moment	X	X	X (see 6.5)
Continued operation	X	X	X (see 6.6)
Corrosion resistance	X	X	
Oxygen ageing	X	X	
Non-metallic synthetic immersion	X	X	
Vibration resistance	X	X	
Brass material compatibility	X	X	
Operation	X		X (see 6.7)