

AS 13984:2024



STANDARDS  
Australia



# Liquid hydrogen — Land vehicle fuelling system interface (ISO 13984:1999, MOD)



AS 13984:2024

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The following are represented on Committee ME-093:

- Australian Gas Association
- Australian Hydrogen Council
- Australian Industry Group
- Chemistry Australia
- Energy Networks Australia
- Engineers Australia
- Gas Energy Australia
- Gas Technical Regulators Committee
- Institute of Electrical Inspectors
- National Association of Testing Authorities Australia
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# **Liquid hydrogen — Land vehicle fuelling system interface (ISO 13984:1999, MOD)**

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## Preface

This Standard was prepared by the Standards Australia Committee ME-093, Hydrogen Technologies.

The objective of this document is to specify the characteristics of liquid hydrogen refuelling and dispensing systems on land vehicles of all types with the aim of —

- (a) reducing the risk of fire and explosion during the refuelling procedure; and
- (b) providing a reasonable level of protection from loss of life and property.

This document applies to the design and installation of liquid hydrogen (LH<sub>2</sub>) fuelling and dispensing systems. The fuelling system interface described in this document is intended to be used with fuel tanks constructed in accordance with ISO 13985.

This document is an adoption with national modifications, and has been reproduced from, ISO 13984:1999, *Liquid hydrogen — Land vehicle fuelling system interface*. The modifications are set out in national variations boxes which give instructions where the text is to be modified for use in Australia.

As this document has been reproduced from an International document, the following apply:

- (i) In the source text “this International Standard” should read “this document”.
- (ii) A full point substitutes for a comma when referring to a decimal marker.

Australian Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

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## 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 3.

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.

International Standard ISO 13984 was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

## Introduction

The fuelling system interface described in this International Standard is intended to be used in conjunction with fuel tanks constructed in accordance with ISO 13985.

NOTE Pursuant to the agreement reached during the sixth plenary meeting of ISO/TC 197, the basic allowable stresses shown in [Table 1](#) of this International Standard have been changed.

## NOTES

# Australian Standard®

## Liquid hydrogen — Land vehicle fuelling system interface (ISO 13984:1999, MOD)

### 1 Scope

This International Standard specifies the characteristics of liquid hydrogen refuelling and dispensing systems on land vehicles of all types in order to reduce the risk of fire and explosion during the refuelling procedure and thus to provide a reasonable level of protection from loss of life and property.

This International Standard is applicable to the design and installation of liquid hydrogen (LH<sub>2</sub>) fuelling and dispensing systems. It describes the system intended for the dispensing of liquid hydrogen to a vehicle, including that portion of the system that handles cold gaseous hydrogen coming from the vehicle tank, that is, the system located between the land vehicle and the storage tank.

### 2 Normative references

#### NATIONAL VARIATIONS

Delete “ASTM A240/A240M-97a, *Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels*” and replace with the following:

AS 4041, *Pressure piping*

AS/NZS 4024.1604, *Safety of machinery, Part 1604: Design of controls, interlocks and guarding — Emergency stop — Principles for design*

AS IEC 61511.1, *Functional safety—Safety instrumented systems for the process industry sector, Part 1: Framework, definitions, system, hardware and application programming requirements*

ASME B31.3, *Process piping*

ASME B31.12, *Hydrogen Piping and Pipelines*

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 1106-3:1984, *Recommended practice for radiographic examination of fusion welded joints — Part 3: Fusion welded circumferential joints in steel pipes of up to 50 mm wall thickness*

ISO 1182, <sup>1)</sup> *Reaction to fire tests for building products — Non-combustibility test*

ISO 9303:1989, *Seamless and welded (except submerged arc-welded) steel tubes for pressure purposes — Full peripheral ultrasonic testing for the detection of longitudinal imperfections*

ISO 10286:1996, *Gas cylinders — Terminology*

ISO 11484:1994, *Steel tubes for pressure purposes — Qualification and certification of non-destructive testing (NDT) personnel*

ISO 12095:1994, *Seamless and welded steel tubes for pressure purposes — Liquid penetrant testing*

1) To be published. (Revision of ISO 1182:1990).