

Australian/New Zealand Standard™

LP Gas fuel vessels for automotive use

AS/NZS 3509:2003

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-001, Pressure Equipment and ME-002, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 27 June 2003 and on behalf of the Council of Standards New Zealand on 8 July 2003. It was published on 5 August 2003.

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Australian/New Zealand Standard™

LP Gas fuel vessels for automotive use

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committees ME-001, Pressure Equipment and ME-002, Gas Cylinders, to supersede AS/NZS 3509:1996, *LP Gas fuel vessels for automotive use*.

The Standard is for vessels with welded attachments intended to be used as parts of installations complying with AS/NZS 1425, *LP Gas fuel systems for vehicle engines*, or NZS 5422.1, *Code of practice for the use of LPG and CNG fuels in internal combustion engines*, Part 1: *LPG fuel*. Certain features, e.g. attachments, require reference to AS/NZS 1425 or NZS 5422.1 and manufacturers should be familiar with these Standards.

The design and manufacture of fuel vessels has strong links with both the gas cylinder industry and the pressure vessels industry, and the Standard has adopted successful practices from both these fields.

The main changes from the 1996 edition are the following:

- (a) Allowance for torispherical ends subject to meeting the requirements of shape (Clause 2.1.2(c)), thickness and pulsation testing (Clause 5.6).
- (b) Review of Section 5.
- (c) Updating of referenced documents and materials.
- (d) Editorial and style changes and clarification.

Duplex stainless steels are not included in this edition at the time of publication. Duplex stainless steels are being evaluated by the Committee and may be included when this investigation is complete.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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Australian/New Zealand Standard
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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for welded carbon steel LP Gas fuel vessels of total internal volume not greater than 500 L, and for welded stainless steel LP Gas fuel vessels of total internal volume not greater than 200 L, intended for automotive installations.

Appendix A is intended for suppliers of ‘valved-up’ vessels for use by an installer without pre-installation tests.

NOTES:

- 1 AS/NZS 1425 (for use in Australia) and NZS 5422.1 (for use in New Zealand) specify requirements for the installation of LP Gas fuel vessels for vehicles.
- 2 Users of this Standard are reminded that it has no legal authority in its own right, but acquires legal standing when adopted by government or an authority having jurisdiction, or if specified as part of a commercial contract.

1.2 OBJECTIVE

This Standard is intended to—

- (a) establish requirements for the design, manufacture, inspection and testing of LP Gas fuel vessels within the limits of Clause 1.1; and
- (b) facilitate the supply of LP Gas fuel vessels which meet the customer’s requirements for use with LP Gas having an effective vapour pressure of 2.55 MPa at 65°C.

1.3 APPLICATION

The LP Gas fuel vessels shall comply with the general requirements of Section 2, and with the specific requirements of Section 3 or Section 4 according to the material of construction as follows:

- (a) Carbon steel Section 3.
- (b) Stainless steel Section 4.

NOTES:

- 1 Vessels of thickness less than 2.2 mm and vessels of stainless steel material grade 304 are suitable only for installation within a compartment of a vehicle (see also AS/NZS 1425).
- 2 For New Zealand, which is deemed to be a marine environment—
 - (a) stainless steels vessels are to be Type 316 grade; and
 - (b) carbon steels vessels are to be painted with a marine protection paint system (see Clause 3.4).

Type tests shall be performed in accordance with Section 5.