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Australian Standard 1869—1983

HOSE AND HOSE ASSEMBLIES FOR LIQUEFIED PETROLEUM GASES (LPG), NATURAL GAS AND TOWN GAS

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee RU/1:

Australian Gas Association
Australian Institute of Petroleum Limited
Confederation of Australian Industry
Country Roads Board, Victoria
Department of Industrial Relations, N.S.W.
Electricity Trust of South Australia
Government Stores Department, N.S.W.
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Plastics Institute of Australia, Incorporated
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Society of Automotive Engineers—Australasia
State Electricity Commission of Victoria
The Institution of The Rubber Industry

AUSTRALIAN STANDARD

HOSE AND HOSE ASSEMBLIES FOR LIQUEFIED PETROLEUM GASES (LPG), NATURAL GAS AND TOWN GAS

AS 1869—1983

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PREFACE

This edition of this standard was prepared by the Association's Committee on Industrial Hose to supersede AS 1869—1981.

The second edition had been prepared in response to a request from Committees ME/15, Storage and Handling of Liquefied Petroleum Gases, and ME/46, Automotive LP Gas Installations. The wider scope of the second edition enabled a suitable standard hose to be specified by cross-reference in such standards as AS 1425, SAA Automotive LP Gas Code, AS 1596, SAA LP Gas Code, and AS 2090, Uninsulated Road Tank Vehicles for Compressed Liquefiable Gases. Reference to these standards is required for in-service procedures.

This third edition was prepared to admit natural gas and town gas.

Provision is made for four classes of hose according to the maximum working pressures and temperatures. The pressures specified for Classes C and D hose are derived from the vapour pressure of propane at 65°C, i.e. 2.55 MPa. The standard specifies requirements for the materials, construction, dimensions and tolerances on inside diameter, performance and methods of test.

The provision of related requirements in this standard, together with a marking requirement for the maximum working pressure, obviates the necessity for similar provisions in other standards.

During the preparation of this standard, cognizance was taken of the requirements included in the following documents:

AGA AG207	Approval Requirements for Gas Hose, Hose Assemblies and Quick-connect Devices
ANS Z106.1	Standard for the Storage and Handling of Liquefied Petroleum Gases
BS 3212	Flexible Rubber Tubing and Hose (including Connections Where Fitted and Safety Recommendations) for Use in LPG Vapour Phase and LPG/Air Installations
BS 4089	Rubber Hose and Hose Assemblies for Liquefied Petroleum Gas Lines
BS 5120	Rubber Hose for Gas Welding and Allied Processes
ISO 2928	Rubber Hose for Liquefied Petroleum Gases (LPG)
RMA IP-10	Specifications for Liquefied Petroleum Gas Hose

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
HOSE AND HOSE ASSEMBLIES FOR LIQUEFIED PETROLEUM GASES (LPG), NATURAL GAS AND TOWN GAS

SECTION 1. SCOPE AND GENERAL REQUIREMENTS

1.1 SCOPE. This standard specifies requirements for hose and hose assemblies for liquefied petroleum gases (LPG), natural gas, town gas manufactured from oil products, tempered liquefied petroleum gas and simulated natural gas in transport, automotive, industrial and domestic applications. It provides for hose up to and including 100 mm internal diameter.

NOTE: Purchasing guidelines are set out in Appendix A.

1.2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1180 Methods of Test for Hose Made from Elastomeric Materials
- 1180.1 —Dimensions
- 1180.2 —Tensile Strength and Elongation
- 1180.3 —Accelerated Ageing
- 1180.4B —Ply Adhesion—Autographic Method
- 1180.5A —Hydrostatic Pressure—Burst Test
- 1180.5B —Hydrostatic Pressure—Proof Test
- 1180.5C —Hydrostatic Pressure—Change in Length
- 1180.5D —Hydrostatic Pressure—Leak Test
- 1180.7E —Resistance to C
- 1180.7F —Resistance of Lining and Cover to Ozone
- 1180.8A —Resistance to Cold Flexing of Hose Assembly
- 1180.11 —Hose and Fitting Compatibility
- 1180.13A —Determination of Electrical Resistance of Hose and Hose Components
- 1180.13B —Determination of Electrical Resistance of Hose Assembly

AS 1257 Bore Sizes, Test Pressures and Tolerances on Lengths of Elastomeric Hose

1.3 CLASSIFICATION. Hose and hose assemblies shall be classified as follows:

Class	*Maximum working pressure*	*Environmental temperature* °C
A	7.0 kPa	−20 to +65
B	7.0 kPa	−20 to +125
C	2.6 MPa	−20 to +65
D	2.6 MPa	−20 to +125

Designation of class shall be by the number of this Australian standard followed by the class letter, e.g. AS 1869/A.

NOTE: Classes B and D are oil-resistant and have automotive application.

1.4 MATERIALS AND CONSTRUCTION.

1.4.1 General. The internal and external surfaces shall be uniform and concentric and the materials of construction shall be free from defects.

1.4.2 Material. The internal surface of the hose shall be fabricated of material which is resistant to LPG, natural gas and town gas.

Any reinforcing or armouring wire shall be of corrosion-resistant material, e.g. galvanized steel. Any earthing wire shall be corrosion-resistant, e.g. stainless steel or tinned copper.

1.4.3 Construction. Hose shall permit the free release of permeating gas during service to prevent blistering or separation of components due to any penetration of gas through the lining.

NOTE: Pricking through the cover at suitable intervals is a common procedure.

Couplings used on hose assemblies shall be designed, constructed and fitted so that an assembly will have sufficient strength to reach the minimum burst pressure and tensile force set out in Section 2 without showing any sign of failure or leakage.

NOTE: Care should be taken to ensure that couplings are properly fitted so as not to damage the reinforcement or other vital parts of the hose.

1.4.4 Electrical Continuity. Where electrically continuous hose is specified (see Appendix A, Paragraph A3.1(c)), unless the hose contains a body wire it shall be made electrically continuous by a 16/0.20 mm (or an equivalent cross-sectional area) of copper or other corrosion-resistant, flexible conducting cable, spirally installed so that it is not over-tensioned by kinking or flexing the hose and fixed to the end connections by soldering, brazing, welding or peening. Body wires shall be similarly attached to end connections.

1.5 DIMENSIONS AND TOLERANCES.

1.5.1 Internal Diameter of Hose. When measured in accordance with AS 1180.1, the internal diameter of hose shall conform to the appropriate value given in Table 1.1.

1.5.2 Length of Hose. The tolerance on cut lengths of hose shall be as specified in AS 1257.