



Regulator for use with liquefied petroleum — Vapour phase

STANDARDS
Australia



AS 4621:2019

This Australian Standard® was prepared by AG-013, Components used for Gas Appliances and Equipment. It was approved on behalf of the Council of Standards Australia on 5 April 2019.

This Standard was published on 14 May 2019.

The following are represented on Committee AG-013:

- Association of Accredited Certification Bodies
- Australian Industry Group
- Energy Networks Australia
- Engineers Australia
- Gas Appliance Manufacturers Association of Australia
- Gas Energy Australia
- Gas Technical Regulators Committee
- Master Plumbers and Mechanical Services Association of Australia (Victorian)
- Master Plumbers Association of QLD

This Standard was issued in draft form for comment as DR AS 4621:2018.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

ISBN 978 1 76072 453 5



Regulator for use with liquefied petroleum — Vapour phase

Originated as AG 205—1979.
Revised as AG 205—1998.
Revised and redesignated as AS 4621—2004.
Second edition 2019.

COPYRIGHT

© Standards Australia Limited 2019

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

Preface

This Standard was prepared by the Standards Australia Committee AG-013, Components used for Gas Appliances and Equipment, to supersede AS 4621—2004, *Regulators for use with liquefied petroleum—Vapour phase*.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with uniform minimum requirements for the safety, performance and use of regulators for use with liquefied petroleum gases (vapour phase).

This Standard should not be regarded as a design specification or as an instruction manual.

In its preparation, consideration has been given to —

- (a) continuity of satisfactory operation;
- (b) prevention of fire hazards, and explosions;
- (c) prevention of injury to persons or property;
- (d) gas rules and regulations now in force; and
- (e) relevant International Standards.

The major changes in this edition are as follows:

- (i) Updated to current drafting rules for Australian Standards.
- (ii) Review of the defined terms.
- (iii) Inclusion for an alternate ammonia based testing for stress corrosion cracking.
- (iv) Alignment, where possible, to equivalent international standards.

Figures in [Appendix A](#) relate to the relevant test methods in [Appendix B](#).

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

Contents

Preface	ii
Section 1 Scope, references, definitions and classification	1
1.1 Scope	1
1.2 Normative references	1
1.3 Terms and definitions	1
1.4 Classification	3
Section 2 Design and construction	4
2.1 Materials	4
2.1.1 Continuity of satisfactory operation	4
2.1.2 Suitability for the conditions of use	4
2.1.3 Materials in contact with gas	4
2.1.4 Melting point of metallic materials	4
2.1.5 Zinc alloy parts	4
2.1.6 Copper containing alloys	4
2.1.7 Component parts selected to appropriate Standards	4
2.2 Construction	4
2.2.1 Continued safe operation	4
2.2.2 Castings and hot pressings	4
2.2.3 Sealing of porous castings or cracks	4
2.2.4 Assembled regulator cleanliness	5
2.2.5 Parts secure against accidental displacement	5
2.2.6 Prevention of accidental shift after calibration	5
2.2.7 Attachment of knobs, handles, movable dials and pointers	5
2.2.8 Springs	5
2.2.9 Securing of parts together	5
2.2.10 Threaded connections with spanner flats	5
2.2.11 Threaded inlet connections	5
2.2.12 Sharp edges	5
2.2.13 Holes for assembly or mounting	5
2.2.14 Permanent sealing of non-functional holes	5
2.2.15 Self-tapping screws	6
2.3 Design	6
2.3.1 Accessibility for adjustment	6
2.3.2 Adjusting devices	6
2.3.3 Tightening of locking device	6
2.3.4 Design of adjustable regulator	6
2.3.5 Components requiring servicing	6
2.3.6 Venting	6
2.3.7 Pressure-relief discharge opening	6
2.3.8 Knobs and movable dials	6
2.3.9 Special purpose connections	7
2.3.10 Lock-up pressure type	7
2.4 Markings	7
2.4.1 General	7
2.4.2 Durability of markings	7
2.5 Instructions	7
Section 3 Performance requirements	9
3.1 General	9
3.1.1 Satisfactory performance in all declared mounting positions	9
3.1.2 Satisfactory performance over declared temperature range	9
3.1.3 Diaphragm stability	9
3.1.4 Weight of diaphragm material	9
3.1.5 Weight of valve seating material	9
3.1.6 Valve seat stability	9

3.2	Leakage	9
3.2.1	Regulator parts subjected to pressure	9
3.2.2	Regulator parts not subjected to full inlet pressure and no pressure relief	10
3.2.3	Regulator parts not subjected to full inlet pressure incorporating pressure relief	10
3.3	Pressure relief valves	10
3.3.1	Discharge pressure	10
3.3.2	Discharge capacity	10
3.3.3	Over pressure protection	10
3.4	Operating characteristics	11
3.4.1	Variation of outlet pressure	11
3.4.2	Pressure variation with temperature changes	11
3.4.3	Lock-up pressure	11
3.5	Mechanical strength	11
3.5.1	Regulators capable of withstanding listed torque values	11
3.5.2	Regulators capable of withstanding listed bending moments	11
3.6	Resistance to hydrocarbons	12
3.7	Durability	12
3.7.1	Cycling test	12
Appendix A (normative) Figures for regulator testing		13
Appendix B (normative) Test methods		18
Appendix C (normative) Units of pressure measurement		46
Bibliography		47

Australian Standard®

Regulator for use with liquefied petroleum — Vapour phase

Section 1 Scope, references, definitions and classification

1.1 Scope

This Standard specifies the minimum safety and performance requirements for self-acting pressure regulators, installed independently or as part of a combination control, which are used to reduce the pressure of vapour phase liquefied petroleum gases to the maximum outlet pressures specified in [Clause 1.4](#).

NOTE Requirements for gas appliance regulators are published in AS 4618.

Where a device is designed to combine the functions of two or more components it shall conform with the Standard for each component.

NOTE Conformance of a regulator or combination gas control with these requirements does not imply that it is acceptable for use without supplemental tests on the regulator installed in its intended application.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1881, *Zinc alloys — Casting ingots and castings — Quality requirement*

AS 2136, *Method for detecting the susceptibility of copper and its alloys to stress corrosion cracking using the mercurous nitrate test*

AS 2473.2, *Valves for compressed gas cylinders, Part 2: Outlet connections (threaded) and stem (inlet) threads*

AS/NZS 5601.1, *Gas installations, Part 1: General installations*

AS/NZS 5601.2, *Gas Installations, Part 2: LP Gas installations in caravans and boats for non-propulsive purposes*

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

1.3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply:

1.3.1

breather vent

orifice or opening designed to permit atmospheric pressure to act on one side of the diaphragm of a regulator

1.3.2

combination gas control

an assembly of two or more different control functions in a single body

Note 1 to entry: Requirements for combination gas controls can be found in AS 4624.