

AS 4289—1995

Reconfirmed 2016

Australian Standard[®]

**Oxygen and acetylene gas
reticulation systems**

This Australian Standard was prepared by Committee ME/2, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 18 April 1995 and published on 5 August 1995.

The following interests are represented on Committee ME/2:

Australian Chamber of Commerce and Industry
Australian Chamber of Manufactures
Australian Gas Association
Australian Liquefied Petroleum Gas Association
Boiler and Pressure Vessel Manufacturers
Department of Defence
Department of Employment, Vocational Education, Training and Industrial Relations, Qld
Department for Industrial Affairs, S.A.
Department of Labour, New Zealand
Department of Minerals and Energy, Qld
Department of Occupational Health, Safety and Welfare, W.A.
Fire Protection Industry Association of Australia
Health and Safety Organization, Vic.
Institute of Metals and Materials Australia
Insurance Council of Australia
Tasmania Development and Resources
Telarc New Zealand
Welding Technology Institute of Australia
WorkCover Authority, C.T.
WorkCover Authority, N.S.W.
Work Health Authority, N.T.

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 93334.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 4289—1995

Oxygen and acetylene gas reticulation systems

RECONFIRMATION NOTICE

Technical Committee ME-002 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 21 July 2016.

The following are represented on Technical Committee ME-002:

Australasian Fire and Emergency Service Authorities Council
Australia New Zealand Industrial Gas Association
Australian Chamber of Commerce and Industry
Engineers Australia
Environmental Protection Authority New Zealand
Fire Protection Association Australia
Gas Energy Australia
Gas Technical Regulatory Committee
International Accreditation New Zealand
National Association of Testing Authorities Australia
SafeWork NSW
The Australian Gas Association
Welding Technology Institute of Australia
Worksafe New Zealand
WorkSafe Victoria

NOTES

Currently in preview, click buy full vers.

Australian Standard[®]

**Oxygen and acetylene gas
reticulation systems**

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 9802 6

PREFACE

This Standard was prepared by the Standards Australia/Standards New Zealand Committee ME/2 on Gas Cylinders.

This Standard is the result of a consensus amongst representatives on the Joint Committee to produce it as an Australian Standard.

It was designed to meet the needs of persons associated with the design, construction, operation and maintenance of reticulation systems for the safe handling of oxygen and acetylene. It also deals with the safe storage and location of supply cylinders and manifolds.

In view of the unique properties of oxygen and acetylene and the need for the greatest care to be exercised in their use, Appendices are included to assist those using the reticulated gases when end-use equipment is connected to the outlet points. Precautions when using oxygen and acetylene are included. This Standard does not cover the supply of gases from oxygen and acetylene generators.

During the development of this Standard, acknowledgment is made to the following documents:

- BCGA-CP4: Industrial gas cylinder manifolds and distribution pipelines (excluding acetylene)
- BCGA-CP6: The safe use of acetylene in the pressure range up to 150 kPa
- IGC 9/78/E: Code of Practice for acetylene pipelines based upon working ranges
- IGC 20/83/E: Distribution of oxygen, acetylene and methylacetylene mixtures at users' works
- IGC 33/86/E: Cleaning of equipment for oxygen service—Guidelines

This Standard limits the size of the pipe to be used in reticulation systems carrying oxygen and acetylene. Guidance will be sought from industry concerning the use of larger diameter piping after this Standard has been in use for a period of time.

This Standard has not given connection details for outlet point valves. A working group has been formed to look at a suitable specification. It is expected that an amendment would be finalized no earlier than a year from the issuing of this Standard to fully specify these connections.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard whereas an 'informative' appendix is only for information and guidance.

At the time of publication, the Committee noted that work was underway toward creating a Standard covering the storage and handling of gas cylinders and will enter into consultation to ensure that compatibility between Standards will be achieved.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	6
1.4 RECORD OF TESTS	6
SECTION 2 OXYGEN SYSTEMS	
2.1 GENERAL	7
2.2 MANIFOLDS—CYLINDER SUPPLY	7
2.3 CONTROL ARRANGEMENTS—LIQUID OXYGEN SUPPLY	9
2.4 PIPING	10
2.5 SAFETY DEVICES	10
2.6 OUTLET POINTS	11
SECTION 3 ACETYLENE SYSTEMS	
3.1 GENERAL	14
3.2 MANIFOLDS—ACETYLENE CYLINDER SUPPLY	14
3.3 PIPING FOR ACETYLENE	16
3.4 SAFETY DEVICES	17
3.5 OUTLET POINTS	17
SECTION 4 CYLINDERS AND CYLINDER SYSTEMS	
4.1 GENERAL	20
4.2 CYLINDERS IN USE	20
4.3 CYLINDERS IN STORAGE	21
SECTION 5 SYSTEM INSTALLATION, TESTING AND COMMISSIONING	
5.1 INSTALLATION	23
5.2 TESTING	27
5.3 COMMISSIONING	28
5.4 CERTIFICATE OF COMPLIANCE	28
SECTION 6 SYSTEM OPERATION AND MAINTENANCE	
6.1 GENERAL	29
6.2 OPERATION	29
6.3 MAINTENANCE	30
6.4 REPAIRS AND CHANGES	31

APPENDICES

A	TEST PROCEDURES FOR OXYGEN AND ACETYLENE PIPELINE INSTALLATIONS	32
B	TYPICAL PIPING JOINT INSPECTION AND LEAK CHECK SHEET	34
C	PRECAUTIONS NECESSARY WHEN USING WELDING AND HEATING EQUIPMENT	35
D	SAFETY PRECAUTIONS—FIRE PROTECTION	37
E	GUIDELINES FOR OPERATION OF EQUIPMENT CONNECTED TO OUTLET POINTS	38
F	PRECAUTIONS WHEN USING OXYGEN AND ACETYLENE	41
G	GUIDELINES FOR WELDING STATIONS/BENCHES	44

First published as AS 4289—1995.

Incorporating:
Amdt 1—1998

© Copyright — STANDARDS AUSTRALIA

Users of standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

STANDARDS AUSTRALIA

Australian Standard

Oxygen and acetylene gas reticulation systems

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for the design, assembly, installation, testing, operation and maintenance of gaseous oxygen and acetylene piping, manifolds and equipment used for the reticulation of these gases in industrial and laboratory applications. It does not apply to oxygen used for breathing purposes. Also, it does not apply to oxygen and acetylene cylinders on carts.

The Standard applies to the following:

- (a) Piping sizes up to 38 mm NB for industrial grade oxygen at pressures not exceeding 2100 kPa, and supplied either from high-pressure (H.P.) oxygen cylinders fitted with connections which comply with AS 2473, or from an oxygen evaporizer fed from a liquid oxygen storage vessel.
- (b) Piping sizes up to 32 mm NB for acetylene within the allowable pressure range for the particular NB of the piping being used, and not exceeding 150 kPa. Supply of acetylene into the piping shall be from cylinders.

Piping in Items (a) and (b) shall comply with AS 4041.

Future direction concerning larger piping sizes beyond those indicated in the Scope will need guidance from industry (see Preface).

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

- | | |
|--------|--|
| 1319 | Safety signs for the occupational environment |
| 1335 | Hose and hose assemblies for general purpose gas welding and allied processes |
| 1345 | Identification of the contents of piping, conduits and ducts (incorporating Amendment 1) |
| 1349 | Bourdon tube pressure and vacuum gauges |
| 1530 | Methods for fire tests on building materials, components and structures |
| 1530.1 | Part 1: Combustibility test for materials |
| 1530.4 | Part 4: Fire-resistance test of elements of building construction |
| 1674 | Safety in welding and allied processes |
| 1674.1 | Part 1: Fire precautions |
| 2381 | Electrical equipment for explosive atmospheres—Selection, installation and maintenance |
| 2381.1 | Part 1: General requirements |
| 2430 | Classification of hazardous areas |
| 2430.1 | Part 1: Explosive gas atmospheres (IEC 79-10) |
| 2444 | Portable fire extinguishers—Selection and location |
| 2473 | Valves for compressed gas cylinders (threaded outlet) |