AS 2896—1998

Australian Standard®

Medical gas systems—Installation and testing of non-flammable medical gas pipeline systems

This Australian Standard was prepared by Committee HT/4, Medical Gases and Pipeline Services. It was approved on behalf of the Council of Standards Australia on 29 August 1997 and published on 5 January 1998.

The following interests are represented on Committee HT/4:

Association of Consulting Engineers, Australia

Australian and New Zealand College of Anaesthetists

Australian Chamber of Commerce and Industry

Australian Society of Anaesthetists

Department of Public Works and Services, N.S.W.

Health Department, W.A.

Institute of Hospital Engineering, Australia

Master Plumbers and Mechanical Contractors Association of New South Wales

Medical Industry Association of Australia

Metal Trades Industry Association of Australia

Ministry of Commerce, New Zealand

N.S.W. Health Department

South Australian Health Commission

This Standard was issued in draft form for comment as DR 95258.

AS 2896—1998

Australian Standard®

Medical gas systems—Installation and testing of non-flammable medical gas pipeline systems

Originated as part of AS CZ9—1963.
Previous edition AS 2896—1991.
Second edition 1998.

Incorporating:
Amdt 1—1999

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

ISBN 0 7337 1486 2

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee HT/4 on Medical Gases and Pipeline Services, to supersede AS 2896—1991. Requirements in this Standard may be used as a guide for piping systems for other non-flammable medical gases and anaesthetic gas scavenging systems but variations in the requirements may be necessary. This Standard will be revised should such a gas come into general use.

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

Non-flammable medical gas pipeline systems are installed according to all national and local codes and regulations such as building, electrical and safety codes. It should be noted that for installation of a pipeline, a high quality of workmanship and experience is essential. For medical gases, e.g. nitric oxide and xenon, that are not referenced in Clause 1.2, special pipeline designs may be required, and these are not covered by this Standard. For certain situations, e.g. hyperbaric conditions, special design and performance criteria for pipelines may be required.

Many systems installed prior to 1997 do not comply with the intent of Clause 2.4.5 for manifold headers. Because the gas specific threaded nipple is not present, the header can be misconnected to a cylinder with a different gas, and cause a hazard to patients. To obviate this risk, it is recommended that existing headers be equipped before the year 2007 to the intent of Clause 2.4.5.

Many systems installed prior to 1986 do not comply with the intent of Clause 3.5 on terminal units. Because the gas specific component of some terminal units can be removed, these terminal units can become a hazard to patients. To obviate this risk, it is recommended that panels with multiple terminal units be upgraded to the intent of Clause 3.5. It is recognized that replacement of single terminal unit panels is less urgent because of the smaller risk.

A sleeve indexed fitting is given in Figure 3.1 for surgical tool gas. This connection is recommended as it contains a thread, and therefore by its design has a controlled detachment and reduces the risk of ‘hose whip’. The use of adaptors with ‘quick connect/disconnect’ (Schrader) fittings is not advisable.

The objective of this revision is to accommodate changes in technology and procedures since 1991.

The differences between this edition and the 1991 edition are as follows:

(a) Vacuum pump sizing has been revised.

(b) Gas specific connections have been further standardized.

(c) Testing procedures have been clarified.

(d) Safety aspects have been refined.

(e) Requirements for the warning system have been upgraded in the interests of greater safety.

In the preparation of this Standard, cognizance was taken of ISO 7396:1987, *Non-flammable medical gas pipeline systems.*

The differences between ISO 7396 and this edition are as follows:

(i) Testing procedures in this edition are more in keeping with Australian industry practice.

(ii) Performance criteria vary substantially.

(iii) Copper pipe specifications differ.

(iv) Useful information on the performance of typical medical gas piping systems is given in an Appendix in this edition.

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.