AS 3840.1—1998
Reconfirmed 2016

Australian Standard™

Pressure regulators for use with medical gases

Part 1: Pressure regulators and pressure regulators with flow-metering devices

This Australian Standard was prepared by Committee ME/2, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 18 September 1998 and published on 5 December 1998.

The following interests are represented on Committee ME/2:

A.C.T. WorkCover Authority

Airconditioning and Refrigeration Wholesalers Association

Association of Certification Bodies

Australian Chamber of Commerce and Industry

Australian Institute of Pressure Equipment Engineers

Australian Liquefied Petroleum Gas Association

Boiler and Pressure Vessels Manufacturers Association of Australia

Department of Administrative and Information Services, S.A.

Department of Defence (Australia)

Department of Minerals and Energy, Qld

Department of Training and Industrial Relations, Qld

Fire Protection Association of Australia

Institute of Metals and Materials Australasia

Institution of Engineers Australia

The Australian Gas Association

Victorian WorkCover Authority

Welding Technology Institute of Australia

WorkCover N.S.W.

Work Health Authority, N.T.

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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 3840.1—1998
Pressure regulators for use with medical gases
Part 1: Pressure regulators and pressure regulators with flow-metering devices

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 Regulators 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

Australian Standard™

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Part 1: Pressure regulators and pressure regulators with flow-metering devices

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PREFACE

This Standard was prepared by the Standards Australia/Standards New Zealand Committee ME/2, Gas Cylinders. This is a new Standard to fulfil a need within the medical gas industry for compressed gas regulators and compressed gas regulators with flow-metering devices.

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

The range of regulators included in this Standard are as follows:

(a) Regulators with connections complying with AS 2472, *Valves for medical gas cylinders (including pin-indexed outlet)* and suitable for user connection to high-pressure gas cylinders with a fill pressure up to 200 bar at 15°C (permanent gases), and equivalent filling ratio resulting in no more than 24 000 kPa at 65°C for high-pressure liquefiable gases.

(b) High-pressure regulators that are an integral part of medical equipment and suitable for connection to high-pressure gas cylinders, subject to the current pressure limitations designated in AS 2472.

(c) Low-pressure regulators, for use with pressures up to 1400 kPa, for user connection to terminal units of medical gas pipeline systems.

This Standard generally aligns with ISO 10524, *Pressure regulators and pressure regulators with flow-metering devices for medical gas systems* and EN 738-1, *Pressure regulators for use with medical gases—Pressure regulators and pressure regulators with flow-metering devices* with magnification and clarification of the test procedures and test result limitations.

Regulations of Federal and other State Authorities may impinge on the use of this Standard and users should be aware of this possibility.

IT SHOULD BE NOTED THAT COMPLIANCE WITH THIS STANDARD MAY NOT NECESSARILY FULFIL ALL LEGAL OBLIGATIONS.

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 Standard

Regulators and flow-metering devices for use with medical gas cylinders

1 SCOPE

1.1 General This Standard specifies requirements for pressure regulators, pressure regulators with integral flow-metering devices and flow-metering devices which are intended to be connected to pressure regulators for the administration of medical gases.

1.2 Medical gases This Standard covers the following common medical gases:

(a) Air.

(b) Carbon dioxide.

(c) Helium.

(d) Oxygen.

(e) Nitrogen.

(f) Nitrous oxide.

(g) Xenon.

(h) Mixtures of oxygen and carbon dioxide.

(i) Mixtures of oxygen and helium.

(j) Mixtures of oxygen and nitrogen.

(k) Mixtures of oxygen and nitrous oxide.

(l) Other gas mixtures to which pin index configurations have been assigned.

NOTE: The list of medical gases shown is not exhaustive.

1.3 Regulators The types of pressure regulators covered by this Standard are as follows:

(a) Regulators intended to be connected by the user to high-pressure gas cylinders with a fill pressure (permanent gases) of up to 20 000 kPa at 15°C and equivalent filling ratio resulting in no more than 24 000 kPa at 65°C for high-pressure liquefiable gases and with inlet connections complying with AS 2472.

(b) High-pressure regulators that are an integral part of medical equipment (e.g. anaesthetic machines, lung ventilators, resuscitators) and suitable for connection to high-pressure gas cylinders, see the current pressure limitations referred to in AS 2472.

(c) Low-pressure regulators (inlet pressure up to 1 400 kPa) intended to be connected by the user to terminal units of medical gas pipeline systems.

NOTE: Although in this Standard the diaphragm type of regulator has been illustrated (see Figure 1), it also applies to regulators of other designs, e.g. piston type.

1.4 Exceptions This Standard does not apply to—

(a) regulators that are an integral part of medical gas pipeline systems, such as medical gas manifolds (these require reference to AS 2896);