AS 2473.2—2007

Australian Standard®

Valves for compressed gas cylinders

Part 2: Outlet connections (threaded) and stem (inlet) threads

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The following are represented on Committee ME-002:

- Australasian Institute of Engineer Surveyors
- Australia New Zealand Industrial Gas Association
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Steel Association
- Department of the Premier and Cabinet, Safework S.A.
- Fire Protection Association of Australia
- International Association for Natural Gas Vehicles
- LPG Australia
- Materials Australia
- Pressure Equipment Association
- Victorian WorkCover Authority
- Welding Technology Institute of Australia
- WorkCover New South Wales

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-002, Gas Cylinders to supersede part of AS 2473—1996, *Valves for compressed gas cylinders (threaded outlet)*, which has been withdrawn.

This Standard results from a decision to expand AS 2473—1996 into a suite of Standards for valves for compressed gas cylinders based as much as possible on ISO Standards. This edition of AS 2473 comprises three parts as follows:

Part 1: Specifications, type testing, and manufacturing tests and inspections.

Part 2: Outlet connections (threaded) and stem (inlet) threads (this Standard).

Part 3: Outlet connections for medical gases (including pin-indexed yoke connections).

Part 1 is based on ISO 10297, *Transportable gas cylinders—Cylinder valves—Specification and type testing* and ISO 14246, *Transportable gas cylinders—Gas cylinder valves—Manufacturing tests and inspections* whilst Part 3, which was formerly designated AS 2472, is largely based on ISO 407, *Small medical gas cylinders—Pin-index yoke-type valve connections*. Further parts may be prepared in the future.

This major revision of Part 2 of the Standard expands and modifies the long term program of moving towards a system of valve outlet connections with greater differentiation by gas and maximum filling pressure. The following is a summary of the main changes in this revision:

(a) The intended differentiation of industrial and medical oxygen outlet connections from all other gases has been modified because the conversion program to differentiate the valve outlets for compressed air and nitrogen, completed in Australia and in New Zealand in 2005, indicated very large anticipated conversion costs to complete the original program.

(b) Industrial oxygen will share the outlet connection Type 10 with Argon, Helium and their mixtures at up to 20 000 kPa fill pressure, but will be fully differentiated at higher filling pressures. The pressure range for oxygen at up to 17 500 kPa and the Type 10.5 outlet connection in AS 2473—1996 have been deleted. However, the nut of the Type 10.5 connection has been added as an alternative to the Type 10 connection to maintain continuity in equipment as it is fully compatible with it.

(c) To maintain the safety intent of the original program, medical oxygen outlet connections for large cylinders will be assigned the appropriate Pin Index connection from AS 2473.3, same as is done for all other medical gases. Hence outlet connections for medical gases will only be specified in AS 2473.3. For information regarding the implementation program for conversion of relevant cylinders from the existing threaded outlet connections to pin-indexed yoke connections, refer to AS 2473.3.

(d) The differentiation by maximum filling pressure ranges has been expanded and simplified. A new filling pressure range of up to 3450 kPa now applies to liquefied petroleum gases, and a pressure range of up to 5600 kPa applies to non-toxic, non-flammable refrigerant gases. The higher pressure ranges of up to 20 000 kPa, up to 31 500 kPa and up to 41 500 kPa apply to other gases, and for oxygen an additional intermediate range of up to 25 000 kPa is maintained.

(e) The list of gases mentioned in the standard has been expanded to include as many as possible of those listed in the new *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code). The list of gases will be common to the revised edition of AS 2030.1 in preparation at the time of publication of this Standard.

(f) The Table for outlet connection details for gases and gas mixtures not specifically listed has been revised, simplified and its classifications renamed to agree better with the new ADG Code. A new connection from BS 341, *Transportable gas container valves* for use with small cylinders has been introduced to replace the Type 41 connection which becomes dedicated for small cylinders for LP gases.

(g) Two alternative outlet connections for very small cylinders for oxygen and acetylene were introduced.

(h) The legacy Australian stem (inlet) threads in the Standard have been given a name to allow differentiation from similar but different European threads.

(i) Guidance for integrity and leak tightness of outlet connections, including for leisure application LP Gas appliances, is now given.

(j) All Tables and Figures in the Standard have been reformatted for simplicity and clarity.

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.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

NOTE THAT FULL COMPLIANCE WITH THIS STANDARD MAY NOT NECESSARILY FULFIL ALL LEGAL OBLIGATIONS.

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1.1 SCOPE

This Standard specifies cylinder valve outlet connections (threaded). These connections are intended to be used with a nominated range of gases and within defined cylinder filling pressure ranges in order to minimize the possibility of hazardous misconnections and the use of downstream equipment at incorrect pressures.

Dimensional details of the outlet connecting parts are included so that each connection, designated by its Type number, is fully defined and complete.

The Standard also specifies some stem (inlet) and cylinder neck threads suitable to connect cylinders valves with cylinders, as well as gauging systems to ensure the accuracy of these threads.

Although the main purpose in standardizing cylinder valve outlet connections is to prevent interconnection with incompatible gases or cylinder pressures, relying only on the valve outlet connection to prevent such interconnections is neither possible nor advisable. The primary means for identifying the contents of compressed gas cylinders is the cylinder markings, including labels.

WARNING: THE CYLINDER VALVE OUTLET CONNECTION IS NOT THE ONLY SAFEGUARD AGAINST ACCIDENTAL MISUSE. THE GAS CYLINDER MARKINGS SHOULD BE CHECKED BEFORE EVERY USE.

NOTES:

1 Specifications of the outlet connections for medical gases applications are given in AS 2473.3.

2 Specifications for outlet connections for use with SCUBA and SCBA applications are not given at this time. ISO 12209 Parts 1 to 3 specifies one such system.

1.2 REFERENCED DOCUMENTS

AS

1722		Pipe threads of Whitworth form
1722.1	Part 1:	Sealing pipe threads
1722.2	Part 2:	Fastening pipe threads
2030		The verification, filling, inspection, testing and maintenance of cylinders for the storage and transport of compressed gases
2030.1	Part 1:	Cylinders for compressed gases other than acetylene
2473		Valves for compressed gas cylinders
2473.1	Part 1:	Specifications, type testing, and manufacturing tests and inspections
2473.3	Part 3:	Outlet connections for medical gases (including pin-indexed yoke connections)