AS 2473—1990

Australian Standard®

Valves for compressed gas cylinders (threaded outlet)

This Australian Standard was prepared by Committee ME/2, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 14 November 1989 and published on 7 May 1990.

The following interests are represented on Committee ME/2;

Aluminium Development Council
Australasian Steamship Owners Federation
Australian Chamber of Commerce
Australian Liquefied Petroleum Gas Association
Australian Underwater Federation
Australian Welding Institute
Board of Fire Commissioners, N.S.W.
Bureau of Steel Manufacturers of Australia
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Department of Mines, Qld
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PREFACE

This Standard was prepared by the Standards Australia Committee as Gas Cylinders to supersede AS 2473—1981.

Two changes are introduced in this edition, viz the introduction of impact testing of the valve/valve protection in place of specified mechanical properties of the valve, and a further change to alternative outlet connections for inert gases.

The impact testing is based on work carried out by The Commonwealth Industrial Gases Limited, and reported to Committee ME/2 in 1983. Testing to prove the adequacy of valve strength or valve protection is intended to overcome unpractical material specifications and to allow the valve manufacturer to optimize the valve strength and port size.

A torque test is still to be finalized, and developmental work is required. Impact values for small LP gas cylinders and for specific applications are listed in Table D1.

The further change to alternative outlet connections for inert gases is necessary as experience has shown that truncated Type 12 and Type 13 connectors can make an unstable connection with a Type 10 connector. The truncated Type 12 and Type 13 connectors were introduced in the 1985 edition, but are to be revoked and replaced by the diameter-indexed connection specified for inert gases in AS 2474, *Valves for compressed gas cylinders (diameter-indexed outlets)*. As connections specified in AS 2474 are only of the self-sealing type, AS 2474 has also been revised to provide for other than self-sealing connections.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard

Valves for compressed gas cylinders (threaded outlet)

1 SCOPE. This Standard specifies inlet and outlet connection threads, material, testing, valve spindle dimensions and operations, and marking requirements, for compressed gas cylinder valves with threaded outlet connections for a nominated range of gases. It also specifies dimensional details of the outlet connecting parts.

NOTES:

1. Requirements for compressed gas cylinder valves with a diameter-indexed system of outlet connections, or with a pin-indexed system of outlet connections (for medical application) are specified in AS 2472 and AS 2474.
2. For convenience the special valve (previously specified in Interpretation No 11 to AS CB4) for use on small seamless gas cylinders for carbon dioxide, is now specified in Appendix C.

This Standard does not apply to valves for portable gas cylinders of less than 11 kg capacity for self-contained breathing apparatus, or to valves for fire-extinguishers.

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

AS	
1391	Methods for tensile testing of metals
1544	Methods for impact tests on metals
1544.1	Part 1: Izod
1596	SAA LP Gas Code
1677	Refrigerating systems
1722	Pipe threads of Whitworth form
1722.1	Part 1: Sealing pipe threads
1722.2	Part 2: Fastening pipe threads
2030	SAA Gas Cylinders Code
2030.1	Part 1: Cylinders for compressed gases other than acetylene
2472	Valves for medical gas cylinders
2474	Valves for compressed gas cylinders (diameter-indexed outlets)
2613	Safety devices for gas cylinders
ANSI B57.1) CGA V—1) CSA B96)	Compressed gas cylinder valve outlet and inlet connections
B2.1	Pipe threads (except dryseal)

3 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 2030.1 apply.

4 THREADS.

4.1 Valve stem (inlet) thread. The valve stem (inlet) thread shall be one of the following:

(a) Taper thread listed in Table 1.

(b) Parallel thread listed in Table 2.

(c) Thread compatible with one of the cylinder neck threads specified in AS 2030.1.

NOTE: Recommended limit gauges for checking the specified taper threads are detailed in Appendix A.

4.1 Valve outlet connection thread. The valve outlet connection thread shall be that shown in Column 4 of Table 3 as appropriate or, where not listed in Table 3, shall be that shown in Column 4 of Table 4.

NOTE: Thread designations in Table 3 are from various origins, and care is necessary in their interpretation. For example, in the designation GB 5/8 /16 LH, the values 5/8 and 16 both refer to a nominal bore (in imperial and metric units), and 16 does not indicate threads per inch. In the designation 0.825—14 NGO—LH—EXT, the value 0.825 refers to major diameter and 14 refers to threads per inch.

Where the gas is not listed in Table 3 or Table 4, or is a gas mixture, the valve outlet connection thread, and type of outlet connection, shall comply with Table 6 for the appropriate classification of gas or gas mixture.

5 DIMENSIONS.

5.1 Spindle. Valves operated by a spindle shall have a handwheel not separable from the spindle without the use of tools, or shall have a squared end to the spindle. The dimension of the squared end shall be that nominated in Column 6 of Table 3 or in Column 5 of Table 4 as appropriate, and as specified in Table 5.

5.2 Outlet connection. The outlet connection shall conform to the dimensions given in Table 7(a) to 7(o) as appropriate, applicable to the type of connection specified in Table 3 for the particular gas. If the particular gas is not listed in Table 3, the outlet connection shall conform to the dimensions given in Tables 7(a) to 7(o) as appropriate, applicable to the type of connection specified in Table 4 for the particular gas.

6 VALVE OPERATION. Spindles for valve operation shall close the valve when rotated clockwise (when viewed from the spindle end). The spindle gland and spindle-retaining nut shall not be loosened by operation of the spindle.

The spindle shall not be separable from the valve body without the prior removal of the spindle-retaining device by the use of tools.

NOTE: Locking compound is not considered to be an adequate means to ensure the retaining nut is not loosened by operation of the spindle.

7 MATERIALS. Materials used for valve components in contact with the contained gas shall be compatible with the contained gas.

NOTE: Some compatible materials are listed in Column 5 of Table 3 and in Column 4 of Table 4.

The copper content of the material of valve bodies for use with acetylene gas shall not exceed 70 percent.