AS 2613—1989

Australian Standard®

Safety devices for gas cylinders

This Australian Standard was prepared by Committee ME/2, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 11 September 1989 and published on 11 December 1989.

The following interests are represented on Committee ME/2:

ACT Administration—Office of City Management
Aluminium Development Council
Australian Assembly of Fire Authorities
Australian Chamber of Commerce
Australian Liquefied Petroleum Gas Association
Australian Underwater Federation
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
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Department of Mines, Qld
Department of Occupational Health, Safety and Welfare, W.A.
Fire Protection Industry Association of Australia
Insurance Council of Australia
Railways of Australia Committee
The Australian Gas Association
Work Health Authority, N.T.

This Standard was issued in draft form for comment as DR 87157.

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First published as AS B281 — 1969.
Revised and redesignated as AS 2613 — 1983.
Second edition 1989.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140
ISBN 0 7262 5927 6

PREFACE

This Standard was prepared by the Standards Australia Committee on Gas Cylinders to supersede AS 2613—1983. The new edition is considered to be necessary to provide more specific requirements and clarification for the testing of pressure-relief valves.

A proposal from the gas cylinder industry was the basis for Appendix D and Appendix H. These Appendices treat pressure-relief valves as a special category of device, and introduce a repeat cycle in the test to show performance after an initial sequence of start-to-discharge, reseal, lift, full discharge, and reseal.

This edition has been restructured to separate performance requirements from test methods. Changes of a technical nature are made in Clauses 1.4, 4.1, 4.3, and 4.6.

Investigations of safety relief of LP gas fuel vessels for automotive vehicles have confirmed that the effects of any safety device discharge channel can be critical. The requirements for discharge from an automotive LP gas vessel have been incorporated in a new edition of AS 1425, *SAA Automotive LP Gas Code*. For gas cylinders covered by any Part of AS 2030, *SAA Gas Cylinder Code*, safety relief device rating is to take into account the full effects of any discharge channel.

It is recognized that not all types of safety devices for gas cylinders fit into the categories provided by the Standard and it should be noted that certain government departments may have regulations setting different requirements from those in this Standard, e.g. the Navigation Act Classified List of Dangerous Goods and Air Navigation Orders.

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STANDARDS AUSTRALIA

Australian Standard

Safety devices for gas cylinders

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies the designations, and the requirements for design, construction, testing, and marking of safety devices required by the AS 2030 series Standards to be fitted to gas cylinders.

NOTES:
1. Safety devices to this Standard are also suitable for use in accordance with AS 1425 for LP gas fuel vessels, but it should be noted that the performance values required by the AS 2030 series and AS 1425 are not necessarily the same. Where intended for use in accordance with AS 1425, the term 'gas cylinder' should be read to include 'LP gas fuel vessel'.
2. Fitment of safety devices on cylinders used for certain gases is prohibited (see requirements for fitment of safety devices specified in the various Parts of AS 2030).

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

AS
1425 SAA Automotive LP Gas Code
1821 Suppliers quality systems for design, development production and installation
1822 Suppliers quality systems for production and installation
1823 Suppliers quality inspection systems
2030 SAA Gas Cylinders Code
2030.1 Part 1: Cylinders for compressed gases other than acetylene
2527 Cylinders for dissolved acetylene

BS
1042 Measurement of fluid flow in closed conduits
Part 1: Pressure differential devices
Section 1.1: Specification for square-edged orifice plates, nozzles and venturi tubes inserted in circular cross-section conduits running full
Section 1.4: Guide to the use of devices specified in Sections 1.1 and 1.2

CGA*
Pamphlet S-1.1 Safety relief device standards
Part 1: Cylinders for compressed gases.

1.3 DESIGNATION. Safety devices shall be designated as follows:

(a) Type BD—Bursting disc.

(b) Type FP1—Fusible plug or reinforced fusible plug, utilizing a fusible material with yield temperature not more than 77°C nor less than 69°C (74°C nominal).

(c) Type FP2—Fusible plug or reinforced fusible plug, utilizing a fusible material with yield temperature not more than 104°C nor less than 98°C (100°C nominal).

(d) Type BD/FP1—Series combination bursting disc/fusible plug, utilizing a fusible material with yield temperature not more than 77°C nor less than 69°C (74°C nominal).

(e) Type BD/FP2—Series combination bursting disc/fusible plug, utilizing material with yield temperature not more than 104°C nor less than 98°C (100°C nominal).

(f) Type PRV—Pressure-relief valve.

(g) Type PRV/FP1—Parallel combination pressure-relief valve/ fusible plug, utilizing a fusible material with yield temperature not more than 77°C nor less than 69°C (74°C nominal).

(h) Type PRV/FP2—Parallel combination pressure-relief valve/ fusible plug, utilizing a fusible material with yield temperature not more than 104°C nor less than 98°C (100°C nominal).

1.4 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 2030.1 and those below apply.

1.4.1 Safety device—a device, including the approach channel, the operating part, and the discharge channel, intended to protect a gas cylinder against overpressure or bursting.

1.4.2 Safety device channel—the passage or passages through which fluid discharge by operation of the safety device must pass from the gas cylinder to the atmosphere.

1.4.3 Safety device approach channel—the parts of the safety device channel on the gas cylinder contents side of the operating part, inclusive of any piping attached to the inlet side of the device.

1.4.4 Safety device discharge channel—that part of the safety device channel on the gas cylinder atmospheric side of the operating part, including any piping attached to the outlet side of the device.

1.4.5 Operating part—the part that closes the safety device channel, but, which when moved from this position as a result of the action of heat or pressure or a combination of the two, permits discharge of fluid from the gas cylinder.

1.4.6 Bursting disc—an operating part of a safety device in the form of a disc which closes the safety device channel. The disc is intended to burst at a predetermined pressure to permit discharge of fluid.

NOTE: Types of disc include flat, preformed, reinforced, and grooved discs.

1.4.7 Pressure opening—orifice against which the operating part functions.

1.4.8 Rated bursting pressure (of a bursting disc)—the maximum pressure at which the bursting disc is designed to burst at the rated temperature when in the pressure opening for which it is designed.

1.4.9 Rated temperature (of a bursting disc)—the temperature at which the rated bursting pressure of a disc is to be determined.

NOTE: Unless otherwise specified, rated temperature is taken as 65°C.

* Compressed Gas Association (U.S.A.)