

STANDARDS AUSTRALIA

Amendment No. 1
to
AS 4627:2017
Quick-connect devices for gas

REVISED TEXT

The 2017 edition of AS 4627 is amended as follows; the amendments should be inserted in the appropriate places.

SUMMARY: This Amendment applies to the Preface, Clauses 1.2, 1.3, 1.4.7, 2.1.101 (new), 2.1.4, 2.1.5, 2.1.6, 2.3.101 (new), 2.3.102 (new), 2.3.9, 2.4, 3.2.2, 3.3, 3.4.1 to 3.4.7, 3.6 (new) and 3.7 (new); Appendix A including Figures A5(A) (new), A5(B) (new) and A6 (new); Appendix B, Paragraphs B4, B5, B7 to B13, B14 (new), B15 (new) and B16 (new).

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Preface

Add the following as a second paragraph:

Amendment No. 1 to this Standard was prepared by the Committee AG-013 to expand the scope of the Standard to include Type 27 quick-connect devices.

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Clause 1.2

- 1 Second paragraph, introduction to list, *delete* ‘Three’ and *replace* with ‘Four’.
- 2 Second paragraph, *add* the following list item:
 - (d) *Type 27*—A quick-connect device with a minimum working pressure of 2640 kPa, incorporating thermal protection and designed to connect to a cylinder valve fitted with outlet connection Type 27 from AS 2473.2.

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Clause 1.3

- 1 *Add* the following to the list of Australian Standards:

2473	Valves for compressed gas cylinders
2473.1	Part 1: Specifications, type testing, and manufacturing tests and inspections
2473.2	Part 2: Outlet connections (threaded) and stem (inlet) threads
3688	Water supply and gas systems—Metallic fittings and end connectors
- 2 *Add* the following to end of the list of referenced documents:

ISO	
6957	Copper alloys—Ammonia test for stress corrosion resistance
ANSI	
Z21.81	Cylinder connection devices (also published as CSA 6.25:R2015)
UL	
2061	Standard for adapters and cylinder connection devices for portable LP-Gas cylinder assemblies

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Clause 1.4.7

Delete the term ‘Technical regulator’ and definition and *replace* with the following:

1.4.7 Type 27 connection

A quick-connect device designed to mate with the external thread of a cylinder valve fitted with outlet connection Type 27 from AS 2473.2.

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Clause 2.1.101 (new)

Insert the following new clause before Clause 2.1.1:

2.1.101 General

Materials used for component parts of quick-connect devices shall be in accordance with applicable Australian Standards or their equivalent.

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Clause 2.1.4

Delete the clause title and text and *replace* with the following:

2.1.4 Melting point of metallic materials

The quick-connect device body(s), valve plugs, related structural components and retaining devices shall be made of metallic materials with a melting point not less than 430°C.

For Type 27 quick-connect devices the retaining device shall not be metallic.

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Clause 2.1.5

Delete text and *replace* with the following:

Brass parts shall be resistant to stress-corrosion cracking when tested in accordance with ISO 6957 or AS 2136.

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Clause 2.1.6

Delete clause title and text.

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Clause 2.3.101 (new)

Insert the following new clause after Clause 2.3.1:

2.3.101 Type 27 quick-connect devices

Type 27 quick-connect device interface shall be in accordance with Figure A5(B). This Standard is applicable for the appliance part only.

NOTES:

- 1 The cylinder portion of the connection is found in outlet connection Type 27 in AS 2473.2.
 - 2 Figure A5(A) is provided for reference only.
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Clause 2.3.102 (new)

Insert the following new clause after Clause 2.3.6:

2.3.102 Type 27 quick-connect device as an integral part of an assembly other than a hose

Clause 2.4 is not applicable for Type 27 quick-connect devices that are an integral part of an assembly, provided the complete assembly is identified with the marking requirements of Clause 2.4.

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Clause 2.3.9

Delete the text and *replace* with the following:

The mating parts of Type 2, Type 3 and Type 27 quick-connect devices shall not be capable of being mated with a Type 1 plug or socket unless, when mated, the assembly will meet the requirements for a Type 1 device.

The mating parts of Type 1, Type 2 and Type 3 quick-connect devices shall not be capable of being mated with a Type 27 connection.

Adaptors shall not be used to change between different types of quick-connect devices.

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Clause 2.4

1 *Delete* the text of Item (e), and *replace* with ‘Direction of flow, except Type 3 and Type 27.’.

2 *Delete* the second paragraph and *replace* with the following:

The part of a quick-connect device that is an end fitting of an assembly in accordance with Clause 2.3.5 or Clause 2.3.6 shall be exempt from this Clause.

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Clause 3.2.2

Delete text and *replace* with the following:

For Type 1, 2 and 3, the external leakage from the body of a quick-connect device shall not exceed 1 mL/min at all internal air pressures up to 1.5 times the rated working pressure with any valve opened and closed, when tested in accordance with M.O.T. 3.2.2 (see Appendix B Paragraph B5).

For Type 27, the external leakage from the body shall not be detectable by visual examination at all internal air pressures up to 3300 kPa when tested in accordance with M.O.T. 3.2.101 (see Appendix B Paragraph B14).

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Clause 3.3

Delete clause title and text and *replace* with the following:

3.3 FLOW CONDITIONS

3.3.1 Pressure loss

When tested in accordance with M.O.T. 3.3.1 (see Appendix B Paragraph B7), the pressure loss/flow rate shall be as follows:

- (a) For a Type 1 quick-connect socket with a flow of 1 m³/h of air, pressure loss shall not exceed 25 Pa with the standard test plugs connected (see Figure A1).
- (b) For a hose assembly in accordance with the requirements in AS/NZS 1869, incorporating a Type 1 quick-connect plug with 1500 mm of hose between end fittings, pressure loss shall not exceed—
 - (i) 65 Pa for a hose up to, and including, 10 mm I.D. with a flow rate of 0.65 m³/h of air; or
 - (ii) 50 Pa for a hose larger than 10 mm I.D. with a flow rate of 1.00 m³/h of air.
- (c) For Type 2 and Type 3 quick-connect devices, pressure loss shall not be less than that declared by the manufacturer for a given flow rate.
- (d) Type 27 quick-connect devices shall have a minimum flow rate of 2.1 m³/h of air at an inlet pressure of 400 kPa.

3.3.2 Excess flow valve

For Type 27 quick-connect devices the excess flow valve shall activate to limit the flow of gas before 2.83 m³/h flow is exceeded at 690 kPa inlet pressure.

Conformance shall be assessed by testing in accordance with M.O.T. 3.3.2 and 3.3.3 (see Appendix B Paragraph B15).

3.3.3 Excess flow valve—Performance in the activated state

For Type 27 quick-connect devices, when the excess flow valve is in the activated position, the flow shall be less than—

- (a) 0.28 m³/h at any pressure less than 690 kPa inlet pressure; and
- (b) 0.45 m³/h at 1700 kPa inlet pressure.

The excess flow valve shall activate before the pressure differential exceeds 103 kPa.

Conformance shall be assessed by testing in accordance with M.O.T. 3.3.2 and 3.3.3 (see Appendix B Paragraph B15).

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Clause 3.4.1

Add the following as the second paragraph:

For Type 27 quick-connect devices this Clause is not applicable.

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Clause 3.4.2

Add the following as the second, third and fourth paragraphs:

For Type 27 quick connect devices, three samples shall be used with an applied bending moment of 5.7 Nm. With the cylinder valve connection portion held rigidly, the bending moment shall be applied at 0°, 90°, 180° and 270°, repeating the moment three times.

The reference point for the moment shall be the mating face between the cylinder connection and the retaining nut.

After the application of the bending moment, each sample shall be subject to the external leakage test (M.O.T. 3.2.2, Appendix B Paragraph B5), external leakage test—Type 27 (M.O.T. 3.2.101, Appendix B Paragraph B14), internal leakage test (M.O.T. 3.2.3, Appendix B Paragraph B6) and hydrostatic safety test (M.O.T. 3.2.1, Appendix B Paragraph B4) when applicable.

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Clause 3.4.3

Add the following as the second paragraph:

For Type 27 quick-connect devices this Clause is not applicable.

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Clause 3.4.4

Delete the first sentence, and *replace* with the following:

The male connector of a Type 1 and the appliance connector of a Type 27 quick-connect device after being subjected to 25 drops from a height of 1 m onto a concrete surface shall—

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Clause 3.4.5

Add the following as the second paragraph:

For Type 27 quick-connect devices this Clause is not applicable.

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Clause 3.4.6

Add the following as the second paragraph:

For Type 27 quick-connect devices this Clause is not applicable.

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Clause 3.4.7

Delete the text and *replace* with the following:

The mating parts of a quick-connect device shall be positively secured together by a locking system. When tested in accordance with M.O.T. 3.4.7 (see Appendix B Paragraph B12), the locking system shall withstand a pulling force of either—

- (a) for Types 1, 2 and 3, as specified in Table 3.5 at a rate of 50 ± 3 mm/min, along the longitudinal axis without distortion or leakage exceeding the values specified in Clause 3.2; or
- (b) for Type 27, 1775 N applied at rate not in excess of 2700 N/min, along the longitudinal axis without distortion or leakage exceeding the values specified in Clause 3.2.1 and Clause 3.2.2.

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Clause 3.6 (new)

Add the following new Clause:

3.6 THERMAL PROTECTION

When tested in accordance with M.O.T. 3.6 (see Appendix B Paragraph B16), a Type 27 quick-connect device mated to the corresponding cylinder valve shall close within 5 minutes when subjected to a temperature between a minimum of 115°C and a maximum of 150°C.

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Clause 3.7 (new)

Add the following new Clause:

3.7 EXPOSURE TO ULTRAVIOLET (UV) LIGHT

Type 27 quick-connect devices shall satisfy the requirements of either—

- (a) UL 2061:2019 Clause 23; or
- (b) ANSI Z21.81-2005/CSA 6.25 (R2015) Clause 2.15.

NOTE: It is intended that the performance requirements of this Clause will be reviewed in the future to ensure suitability for all Australian conditions.

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Appendix A

Add the following to the table of figures:

A5(A)	CGA CONNECTION NO.791 REFERENCE DRAWING
A5(B)	TYPE 27 QUICK-CONNECTOR NIPPLE/COUPLING
A6	FLOW RATE TEST RIG