

AS/NZS 5263.1.3:2021
(Incorporating Amendment No. 1)



Australian/New Zealand Standard™

Gas appliances

Part 1.3: Gas space heating appliances



AS/NZS 5263.1.3:2021

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- Consumer Electronics Suppliers Association
- Consumers Federation of Australia
- Energy Networks Australia
- Gas Appliance Manufacturers Association of Australia
- Gas Association of New Zealand
- Gas Energy Australia
- Gas Technical Regulators Committee
- Gas Utilization Institute, New Zealand
- Joint Accreditation System of Australia and New Zealand
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Australian/New Zealand Standard™

Gas appliances

Part 1.3: Gas space heating appliances

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee AG-001, Gas Appliances, to supersede AS/NZS 5263.1.3:2016, *Gas appliances*, Part 1.3: *Gas space heating appliances*.

[A1] This Standard incorporates Amendment No. 1 (November 2021). The start and end of changes introduced by the Amendment are indicated in the text by tags including the amendment number 1. **[A1]**

This Standard provides particular requirements for gas space heating appliances that apply in addition to or in place of the general requirements for gas appliances set out in AS/NZS 5263.0, *Gas appliances*, Part 0: *General requirements*. The combination of AS/NZS 5263.1.3 (this Standard) and AS/NZS 5263.0 supersedes the combination of AS/NZS 5263.1.3:2016 and AS 5263.0:2013.

This Part 1.3 of AS/NZS 5263, supplements or modifies the corresponding Clauses of Part 0. The numbering of clauses in this Part 1.3 is consistent with the numbering in Part 0 for related requirements.

Statements used in this Part 1.3 to explain the relationship of clauses in this Standard to the corresponding clauses in Part 0 are as follows:

- (a) “This Clause of AS/NZS 5263.0 applies”, in which case the corresponding clause of Part 0 and its subclauses are used without modification.
- (b) “This Clause of AS/NZS 5263.0 applies, except as modified below”, in which case the corresponding clause of Part 0 and its subclauses are used but with the modifications, as listed in this document.
- (c) “Not applicable”, in which case the corresponding clause of Part 0 is not used in this context.

Otherwise the text in this Standard replaces the corresponding clause of Part 0.

Any clauses in this Standard that are additional to the requirements of Part 0 are numbered beginning from 101 (except for additional definitions, which begin from 201). Additional appendices in this Part 1.3 are designated with a letter starting from AA, or numbered beginning from 101 (e.g. ZA.101).

Where an appendix or part of an appendix (i.e. clause, figure or table) is cited in this Standard, reference should first be made to Part 0 for the content of the appendix, which may be modified by this Part 1.3.

This Standard (AS/NZS 5263.1.3), together with the Standard AS/NZS 5263.0 (Part 0), constitute a means of conformance to AS 3645, *Essential requirements for gas equipment*, for gas space heaters.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, conformity assessment bodies and similar organizations with uniform minimum requirements for the safety, performance and use of gas appliances.

This Standard should not be regarded as a design specification or as an instruction manual.

Consideration has been given to —

- (i) continuity of satisfactory operation;
- (ii) the prevention of fire hazards, and explosions;
- (iii) the prevention of injury to persons or property;
- (iv) gas rules and regulations now in force; and
- (v) relevant International Standards.

AS/NZS 5601 series of Standards provides essential requirements and means of conformance for gas installations. Any reference to “AS/NZS 5601” in AS/NZS 5263 series of Standards should be considered

as reference to the appropriate part of AS/NZS 5601 series of Standards (i.e. AS/NZS 5601.1 or AS/NZS 5601.2).

The terms “normative” and “informative” are used in Standards 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.

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Australian/New Zealand Standard

Gas appliances

Part 1.3: Gas space heating appliances

Section 1 Scope and general

1.1 Scope and application

1.1.1 Scope

This Standard provides specific requirements and test methods for gas space heating appliances (convectors, radiant convectors, wall furnaces), with an energy input not exceeding 150 MJ/h.

For Australia, the fuel gases are natural gas (as described by AS 4564), town gas, liquefied petroleum gas (LP Gas, as described by AS 4670), simulated natural gas (SNG) and tempered liquefied petroleum gas (TLP).

For New Zealand:

- (a) The fuel gases are natural gas (as specified in NZS 5442) and general product liquefied petroleum gas (NZLPG) (as specified in NZS 5435).
- (b) The thermal efficiency requirements are informative only, except where they relate to safety.

NOTE 1 Decorative effect gas appliances are not covered by this Standard but are covered by the requirements of AS/NZS 5263.1.8.

NOTE 2 Appliances falling within the scope of AS 2658 are not covered by this Standard.

NOTE 3 Other statutory and regulatory requirements may be applicable to a product that falls within the scope of this Standard. It is the responsibility of the manufacturer, importer or distributor (as appropriate) to ensure that products conform to such requirements.

[Appendix AA](#) provides figures referenced in this Standard that are in addition to those in AS/NZS 5263.0.

Test methods are set out in [Appendices ZA, ZB](#) and [ZC](#) (see [Clause 1.4](#)).

1.1.2 Application

This Standard is complementary to, and is intended to be used in conjunction with AS/NZS 5263.0. The requirements given herein shall take precedence over corresponding requirements in that Standard.

AS 3645 specifies essential requirements for gas equipment that requires regulatory approval before sale. This Standard, together with AS/NZS 5263.0, is intended to provide a means of demonstrating conformance to AS 3645.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 4566, *Flue cowl — Gas appliances*

AS 4567, *Twin wall metal flues — Gas appliances*

AS/NZS 5263.0, *Gas appliances, Part 0: General requirements*

1.3 Terms and definitions

For the purposes of this Standard the terms and definitions given in AS/NZS 5263.0 and the following apply.

1.3.201

console appliance

appliance designed to be mounted on or against a wall and not built into a fireplace or cavity

1.3.202

convection heater

appliance with an effective output of heated air

1.3.203

emission class

classification of appliances based on the emission rate of NO₂

1.3.203.1

emission class 0

having an NO₂ emission rate into the room of 0 ng/J

1.3.203.2

emission class 1

having an NO₂ emission rate into the room of less than or equal to 2.5 ng/J

1.3.203.3

emission class 2

having an NO₂ emission rate into the room greater than 2.5 ng/J, but less than or equal to 5 ng/J

1.3.203.4

emission class NT

classification for an indoor flueless appliance which has not been tested for NO₂ emissions or with an NO₂ emission rate greater than 5 ng/J

1.3.204

radiant convection heater

appliance with an effective output of both radiation and heated air

1.3.205

radiant heater

appliance with an effective output mainly in the form of radiation

1.3.206

space heater

appliance whose primary function is to heat the space in which it is installed through radiant or convective heat or a combination of both

1.3.207

wall furnace

convection heater that is installed either between the wall studs or on the surface of the wall to heat the space in which it is installed

1.4 Test methods

The modified and new test methods applicable for this Standard are located in the following appendices; apart from these, the test methods of AS/NZS 5263.0 apply.

Appendix ZA — Preliminary test methods (applicable for [Section 3](#))

There are no modifications or new methods for this Standard. Preliminary test methods from AS/NZS 5263.0 apply as set out in [Section 3](#).

Appendix ZB — Limiting condition test methods (applicable for [Section 4](#))

- ZB.1 Determination of CO/CO₂ ratio for independent surface combustion burners — Underload test
- ZB.2 Determination of CO/CO₂ ratio for any independent burner — Overload test
- ZB.101 Light back in flueless appliances with concealed burner(s)

Appendix ZC — Performance test methods (applicable for [Section 5](#))

- ZC.3 Spillage of combustion products test
- ZC.4 Performance with downdraught, updraught and blocked flue test
- ZC.9 Resistance to temperatures — Overload gas consumption test
- ZC.101 Radiant efficiency — Radiant heaters test
- ZC.102 Thermal efficiency — Convection, radiant convection and room sealed heaters test
- ZC.103 Thermal efficiency in wind condition test
- ZC.104 Rear register — Heat output test
- ZC.105 Temperature control characteristics — Snap acting thermostats test
- ZC.106 Temperature control operation test
- ZC.107 Energy labelling test
- A1 ZC.108 Shutdown under negative room pressure A1

Section 2 Design and construction

2.1 Scope

This Clause of AS/NZS 5263.0 applies.

2.2 General design requirements

This Clause of AS/NZS 5263.0 applies, except as modified below.

2.2.13 Design of appliance base

Not applicable.

2.2.101 Fuel storage container

The appliance shall not incorporate or have provision for a fuel storage container.

2.2.102 Surface finish of primary guard

All exposed surfaces of a primary guard shall be smoothly finished to prevent the possibility of abrasion or laceration to the user, or snagging of clothing.

2.3 Materials

This Clause of AS/NZS 5263.0 applies.

2.4 Design for assembly and installation

This Clause of AS/NZS 5263.0 applies.

2.5 Design for maintenance

This Clause of AS/NZS 5263.0 applies.

2.6 Design for operation

This Clause of AS/NZS 5263.0 applies.

2.7 Controls and safety devices

This Clause of AS/NZS 5263.0 applies, except as modified below.

2.7.101 Flueless appliances — Additional shut off provision

Indoor flueless appliances shall be equipped with a system which shuts off gas supply before incomplete combustion occurs.

2.7.102 Safety controls for exposed burners

Appliances fitted with exposed burners shall not have exposed controls capable of activating and sustaining ignition by momentary operation.

2.8 Gas train

This Clause of AS/NZS 5263.0 applies.

2.9 Combustion air and flue systems

This Clause of AS/NZS 5263.0 applies, except as modified below.

2.9.5 Design of flue connection

The flue connection shall provide means to prevent partial or complete blockage of flueways caused by the fitting of a flue pipe. The minimum length of engagement shall be not less than 13 mm for a vertical flue connection and 25 mm for a horizontal flue connection.

For Australia, in addition, flue connections shall conform to at least one of the following:

- (a) A horizontal flue connection on an open flued appliance having a gas consumption of up to 50 MJ/h shall be a rectangular spigot of nominal dimensions 250 mm × 50 mm, conforming to the requirements of Table 2.9.5.2. The use of an adaptor whose termination conforms to these dimensions and which is supplied with the appliance shall be deemed to conform to this requirement.
- (b) A vertical flue connection on an open flued appliance having a gas consumption of up to 50 MJ/h shall be a spigot suitable for connection to twin wall metal flue conforming to AS 4567. The use of an adaptor meeting this requirement and supplied with the appliance shall be deemed to conform to this requirement.
- (c) A vertical or horizontal flue connection on an open flued appliance having a gas consumption greater than 50 MJ/h shall be designed to accommodate both single wall and twin wall circular or rectangular metal flue pipes. The use of an adaptor to achieve this purpose shall be deemed to conform to this requirement.
- (d) Flue connections or adaptors designed only for a single wall metal flue pipe shall conform to the dimensions in Table 2.9.5.1 and Table 2.9.5.2.
- (e) The flue connection shall be suitable for a flue that is specified by the manufacturer.

2.9.101 Circulating air system

Appliances shall be so constructed that there is no leakage of circulating air into the heat exchanger or of combustion products into the circulating air system.

2.9.102 Flue cowls

Flue cowls for open flued appliances, specified by the manufacturer or supplied with the appliance shall meet the relevant requirements of AS 4566.

2.10 Fan assisted combustion systems

This Clause of AS/NZS 5263.0 applies.

2.11 Burners and ignition systems

This Clause of AS/NZS 5263.0 applies.

2.12 Components

This Clause of AS/NZS 5263.0 applies.

2.13 Cylinders and cylinder compartments

Not applicable.

2.14 Markings

This Clause of AS/NZS 5263.0 applies, except as modified below.

2.14.2 Permanent markings on appliances

NOTE 1 Other marking requirements (e.g. wiring diagrams, identification of certification body and certificate number) may be applicable to a product that falls within the scope of this Standard. It is the responsibility of the manufacturer, importer or distributor (as appropriate) to check other marking requirements.

Appliances shall be provided with clear and permanent markings readily accessible and easy to read. Such markings shall include the items specified in this Clause of AS/NZS 5263.0 and the following:

- (aa) The appropriate warning label(s) as shown in [Figure AA.101](#), located on the outside of the appliance in a position where they can be easily read by the operator when the appliance is in the installed position. For indoor flueless appliances, this label shall indicate the minimum room size in which the appliance may be installed, according to [Table 2.14.2](#).

Table 2.14.2 — Maximum input for determination of minimum room size

Appliance type	Maximum input per cubic metre of room volume, MJ/h
Thermostatically controlled	0.4
Not thermostatically controlled	0.2

- (bb) The emission classification of an indoor flueless appliance in the following format using bold capital letters not less than 3 mm in height —

“**EMISSION CLASS X APPLIANCE**”, where “X” is “1”, “2” or “NT”, as appropriate.

For an indoor flueless appliance that has not been tested to [Clause 5.13.5](#), or exceeds an emission rate of 5 ng/J the emission class is “NT”. Emission class “NT” is not applicable to Australia.

NOTE 2 Refer to [Clause 5.13.5](#) for the determination of appliance emission class.

NOTE 3 Flued appliances may be marked as emission class 0.

- (cc) Instructions as required in [Clause 2.15.3.1\(e\)](#).
- (dd) In the case of appliances fitted with rear registers:
- (i) The heat output that can be diverted (see [Clause 5.12.104](#)).
 - (ii) Whether or not the appliance incorporates an air path to prevent the operation of the air circulating fan lowering the pressure in the room where the appliance is installed.
 - (iii) If a return air path is not incorporated, a warning that a relief grille may be required between the two rooms to equalize the air pressure.

2.14.14 Markings on packaging

The packaging shall be marked in a prominent position with the items specified in this Clause of AS/NZS 5263.0 and, for indoor flueless appliances, the following:

- (aa) The warnings for flueless appliances according to [Figure AA.101](#) (excepting that the symbol may be omitted).
- (bb) The emission classification of the appliance in the following format using bold capital letters:

“**EMISSION CLASS X APPLIANCE**”, where “X” is “1”, “2” or “NT”, as appropriate.

For an indoor flueless appliance that has not been tested to [Clause 5.13.5](#) or exceeds an emission rate of 5 ng/J the classification is emission class NT. Emission class “NT” is not applicable to Australia.

NOTE 1 Refer to [Clause 5.13.5](#) for the determination of appliance emission class.

NOTE 2 Flued appliances may be marked as emission class 0.

NOTE 3 Where there is no packaging or the packaging is transparent, it is sufficient to place these markings on the appliance, as long as they are visible.

2.14.101 Marking of radiants

Radiants intended for replacement by the user shall be permanently marked in such a manner as to enable users to obtain correct replacements and to indicate correct location.

2.14.102 Energy label (Australia only)

The energy label, as specified in [Clause 5.102](#), shall be affixed in a prominent position on each appliance.

2.14.103 Emission label (Australia only)

The emission label, as illustrated in [Figures AA.106\(A\)](#) and [AA.106\(B\)](#), and incorporating the NO₂ emission rate and star rating (see [Clause 5.103](#)) shall be affixed in a prominent position on each appliance. The emission label shall be placed as close as practicable to the energy label specified in [Clause 2.14.102](#).

2.15 Instructions

This Clause of AS/NZS 5263.0 applies, except as modified below.

2.15.2 Installation

2.15.2.1 Instructions supplied with the appliance

Each appliance shall be supplied with installation instructions that include the items specified in this Clause of AS/NZS 5263.0 and the following:

- (aa) Where an appliance is not intended or designed for a fireplace installation, the following text:
“DO NOT INSTALL IN A FIREPLACE”.
- (bb) Details of the methods of connection and alternatives. In the case of flueless appliances, this shall include the following text:
“NOT TO BE CONNECTED TO AN LP GAS CYLINDER LOCATED INDOORS”.
- (cc) Details of the required surroundings of the appliance, and the clearance required from cupboards, fixings, walls, curtains, floors or other combustible materials. This requirement also applies to rear registers fitted to wall furnaces.
- (dd) In the case of appliances fitted with rear registers, the details of heat output that can be diverted (see [Clause 5.12.104](#)).
- (ee) Details of any proprietary flue intended to be used with the appliance.
- (ff) For open flued appliances, an instruction that a flue cowl conforming to AS 4566, or the proprietary cowl specified by the manufacturer shall be used.

2.15.2.3 Warning statement

Not applicable.

2.15.3 Operation

2.15.3.1 General

Each appliance shall be supplied with operating instructions, covering each separate function of the appliance and such dismantling, cleaning, and assembly as is necessary for the user, and that include reference to the items specified in this Clause of AS/NZS 5263.0 and the following:

- (aa) Where the appliance is fitted with a primary guard, the full text of the primary guard warning label, as shown in Clause 2.14.12 of AS/NZS 5263.0.
- (bb) Where the appliance incorporates live fuel effect, a statement that appliances incorporating a live fuel effect, and designed to operate with luminous flames, may exhibit slight carbon deposition.

2.15.101 Console appliances

The operation instructions for console appliances shall include a clearly defined and prominent warning against building the appliance into bookcases, walls, etc. Where manufacturers provide an insulated outer casing specifically designed to allow installation in walls, clear instruction shall be given for its use.

Section 3 Preliminary tests — Line gases

3.1 General

This Clause of AS/NZS 5263.0 applies.

3.2 Preparation for testing

This Clause of AS/NZS 5263.0 applies.

3.3 Gas leakage

This Clause of AS/NZS 5263.0 applies.

3.4 Gas consumption

This Clause of AS/NZS 5263.0 applies.

3.5 Gas pressure regulators

This Clause of AS/NZS 5263.0 applies.

3.6 Ignition and safety shut off systems

This Clause of AS/NZS 5263.0 applies.

3.7 Ignition of draped fabric

This Clause of AS/NZS 5263.0 applies.

Section 4 Tests under limiting conditions

4.1 General

This Clause of AS/NZS 5263.0 applies.

4.2 CO/CO₂ ratio limits for any independent surface combustion burner — Underload

This Clause of AS/NZS 5263.0 applies.

4.3 CO/CO₂ ratio limits for any independent burner — Overload

This Clause of AS/NZS 5263.0 applies.

4.4 CO/CO₂ ratio limits for permanent pilots — Overload

This Clause of AS/NZS 5263.0 applies.

4.5 Flame characteristics at maximum and minimum limiting conditions

This Clause of AS/NZS 5263.0 applies.

4.6 Burner ignition at maximum and minimum limiting conditions

This Clause of AS/NZS 5263.0 applies.

4.7 Delayed ignition at maximum and minimum limiting conditions

This Clause of AS/NZS 5263.0 applies.

4.8 Reignition at turndown under draught conditions

This Clause of AS/NZS 5263.0 applies.

4.9 Pilot ignition and stability at maximum and minimum limiting conditions

This Clause of AS/NZS 5263.0 applies.

4.10 Burner stability when changing setting

This Clause of AS/NZS 5263.0 applies.

4.11 Unburnt gas release from burner system

This Clause of AS/NZS 5263.0 applies.

4.12 Blocked flueway terminal

This Clause of AS/NZS 5263.0 applies.

4.13 Case pressure test

This Clause of AS/NZS 5263.0 applies.

4.14 Effect of opening and closing doors at turndown condition

This Clause of AS/NZS 5263.0 applies.

4.15 Sooting — Luminous effect appliances

This Clause of AS/NZS 5263.0 applies.

4.16 Burner interference at ignition or during combustion

This Clause of AS/NZS 5263.0 applies.

4.101 Light back in flueless appliances with concealed burner(s)

When tested in accordance with Test Method ZB.101, using the limiting conditions as specified in [Table 4.101](#), sustained light back in flueless appliances with concealed burner(s) shall not be possible.

Table 4.101 — Limiting conditions — Concealed burners

Appliance gas type	Test gas	Test point pressure
Natural gas (Australia)	Nb	$0.75 \times Pt$
Natural gas (NZ)	Nb	$0.75 \times Pt$
Propane	X	$0.75 \times Pt$
Butane	Y	$0.75 \times Pt$
Universal LP Gas	X	$0.75 \times Pt$
NZLPG	X	$0.75 \times Pt$
TLP	Tb	$0.75 \times Pt$
TG	B	$0.75 \times Pt$
Pt = nominal test point pressure		

Section 5 Performance specifications

5.1 Combustion air supply

This Clause of AS/NZS 5263.0 applies.

5.2 Flue operation

 This Clause of AS/NZS 5263.0 applies, except as modified below. 

5.2.101 Safety shutdown under negative room pressure

An open flued gas space heater shall not permit the ongoing release of combustion products into a room when subjected to a sustained negative room pressure condition when tested in accordance with Test Method ZC.108, as follows:

- (a) The CO/CO₂ ratio of combustion products when measured at the draught diverter opening(s) or relief opening or any other location from where combustion products could spill into the room shall not exceed 0.02 after 10 min of operation or the appliance shall shut down.
- (b) The appliance shall not spill combustion products for more than 15 min.
- (c) The appliance shall not shut down automatically when subjected to a negative room pressure for less than 5 min.

NOTE The purpose of this requirement is to prevent nuisance shutdowns.

- (d) Shut down of the appliance shall cause non-volatile lockout. Any manual reset shall not be possible without the use of a tool.
- (e) There shall be no flame abnormality.
- (f) The CO concentration in the test room or test room extraction system shall not exceed 90 ppm during the test.
- (g) The functionality that enables safety shut down under the negative room pressure shall withstand 1 000 cycles of operation, without failure.

NOTE Where a defined component achieves a minimum of 1 000 cycles and it conforms to a relevant Standard, then the complete appliance does not need to be subjected to this cycle test.

- (h) Where an appliance is power flued or has a fan assisted combustion system, failure of the fan or impairment of fan performance shall not result in spillage of combustion products under the requirements of this Clause.

NOTE Impairment of fan performance is intended to simulate the effects of greater negative pressure. 

5.3 Condensate

This Clause of AS/NZS 5263.0 applies.

5.4 Temperature hazards

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.4.2 Appliance operating conditions

The appliance shall be operated with normal test gas pressure at the appliance inlet with the thermostat, if fitted, set at maximum for not less than 1 h or until thermal equilibrium is reached.

The room or return air thermostat sensor shall not be allowed to reduce input.

5.5 Heat resistance of appliance

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.5.1 Resistance to temperatures

5.5.1.2 Test conditions

The appliance shall be operated continuously at overload gas consumption for 100 cycles of 2 h on and 1 h off with the thermostat, if fitted, set at maximum.

5.5.1.3 Assessment

After operation in accordance with Test Method ZC.9 the appliance shall function normally and satisfy the requirements listed under Clause 5.5.1.3 of AS/NZS 5263.0 and there shall be no accumulation of carbon that adversely affects the appliance performance or aesthetics.

5.6 Durability

This Clause of AS/NZS 5263.0 applies.

5.7 Electrical supply variation or failure

This Clause of AS/NZS 5263.0 applies.

5.8 Appliance operation under linting conditions

This Clause of AS/NZS 5263.0 applies.

5.9 Rain test for outdoor and room sealed appliances

This Clause of AS/NZS 5263.0 applies.

5.10 Operation under windy conditions

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.10.4 Open flued appliances

Not applicable.

5.11 Strength and stability

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.11.1 Bearing pressure

When tested in accordance with Test Method ZC.21, except for indoor flueless appliances weighing less than 25 kg and supported by castors, the bearing pressure of the appliance on the floor shall not exceed 350 kPa.

5.12 Thermal efficiency (Australia only)

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.12.101 Thermal efficiency based on gross heating value

The thermal efficiency of an appliance based on gross heating value shall conform as follows:

- (a) Radiant heaters, when tested in accordance with Test Method ZC.101, shall have radiant efficiency not less than 30 %.
- (b) Convection and radiant convection heaters, when tested in accordance with Test Method ZC.102, shall have total efficiency as follows:
 - (i) For natural convection — not less than 60 %.
 - (ii) For forced convection — not less than 70 %.
- (c) Room sealed heaters, when tested in accordance with Test Method ZC.102, shall have total efficiency not less than 70 % with flue systems providing the maximum and minimum resistance to flow.

5.12.102 Flued forced convection and flued forced radiant convection heaters

Flued forced convection and flued forced radiant convection heaters shall conform to [Clause 5.12.101](#) Item (b)(ii) when tested at all fan speeds and shall conform to [Clause 5.12.101](#) Item (b)(i) with the fan off.

5.12.103 Reduction in thermal efficiency with maximum flue length

When subjected to a flue pull equivalent to a length of flue terminating 4.5 m above floor level, the thermal efficiency of a forced convection heater shall not be less than 60 % and for a natural convection heater shall not be less than 50 %.

5.12.104 Rear registers

When a heater fitted with a rear register for heating a room at the rear of that in which the heater is located is tested in accordance with Test Method ZC.104 the following shall apply:

- (a) The output shall be within ± 10 % of the manufacturer's specified output when the register is open.
- (b) When in the fully closed position, the register shall not allow leakage in excess of 5 % of the heat output of the heater.

5.12.105 Thermal efficiency in wind conditions

When tested in accordance with Test Method ZC.103, the CO₂ content of the flue gases of power flued or room sealed heaters shall not fall by more than 10 % of its original value when winds of 15 km/h are directed onto the flue terminal irrespective of direction.

5.13 Vitiating and emissions

This Clause of AS/NZS 5263.0 applies, except as modified below.

5.13.5 Nitrogen dioxide emission rate (Australia only)

When tested in accordance with Test Method ZC.32, the nitrogen dioxide emission rate (*ER*) of an indoor flueless heater at normal test gas pressure and on maximum gas rate, shall not exceed —

- (a) for an emission class 1 appliance, 2.5 ng/J; or
- (b) for an emission class 2 appliance, 5.0 ng/J.

5.101 Room temperature controls

5.101.1 Appliance temperature controls

When tested in accordance with Test Method ZC.105, thermostats for the control of appliances shall —

- (a) have a maximum differential of 3 °C; and
- (b) in successive tests, operate within 1 °C of the set temperature.

5.101.2 Location of temperature controls

Heaters shall be designed so that —

- (a) significant direct recirculation of the heated air onto the thermostat sensor is avoided;
- (b) the thermostat is located so that the body temperature of the heater has no significant effect on its operation; and
- (c) the gas rate does not decrease by more than 10 % when the heater is operated in accordance with Test Method ZC.106.

5.102 Energy labelling (Australia only)

The energy label, as illustrated in [Figures AA.105\(A\)](#) and [AA.105\(B\)](#) shall display the following:

- (a) Stars and part stars.
- (b) Red band angle, (*RBA*).
- (c) Annual energy consumption (*AEC*).
- (d) The maximum heat output rate (*Q*).

The values of *RBA*, *AEC* and *Q* shall be determined in accordance with Test Method ZC.107.

NOTE Where an appliance is being tested for multi-gas applications, performance results for the gas type having the same nominal gas consumption as other gas types (of the same design of appliance) are deemed to apply to other gas types for the tests in Test Method ZC.107.

5.103 Emission labelling (Australia only)

The emission label, as illustrated in [Figures AA.106\(A\)](#) and [AA.106\(B\)](#), shall display the red band shading and reveal stars and part stars.

The text on the label shall show the average NO₂ emission rate of the heater in nanograms per joule (ng/J). The stars and red band shading shall be determined according to the NO₂ emission rate of the heater (*ER*) in accordance with [Clause 5.13.5](#), and as shown in [Table 5.103](#).

Table 5.103 — Calculation of red band shading and stars

<i>ER</i> ng/J	Number of stars (<i>Ns</i>)	Red band angle (<i>A_R</i>) degrees
5	1	30
Less than 5	1 to 6	180 – 30(<i>ER</i>)

$$\text{Number of stars } N_s = \frac{A_R}{30}$$

NOTE An emission label in accordance with this Clause may also be applied to flued heaters, which are deemed to have a zero emission rate of NO₂, and the red band shading which reveals all 6 stars (180°).

Appendix D (normative)

Flue gas sampling and temperature measurement

NOTE Where a test method or part of a test method (i.e. Paragraph, Figure or Table) is cited in this Standard, reference should first be made to AS/NZS 5263.0 for the content of the test method, which may be modified by this Standard.

This Appendix of AS/NZS 5263.0 applies, except as modified below.

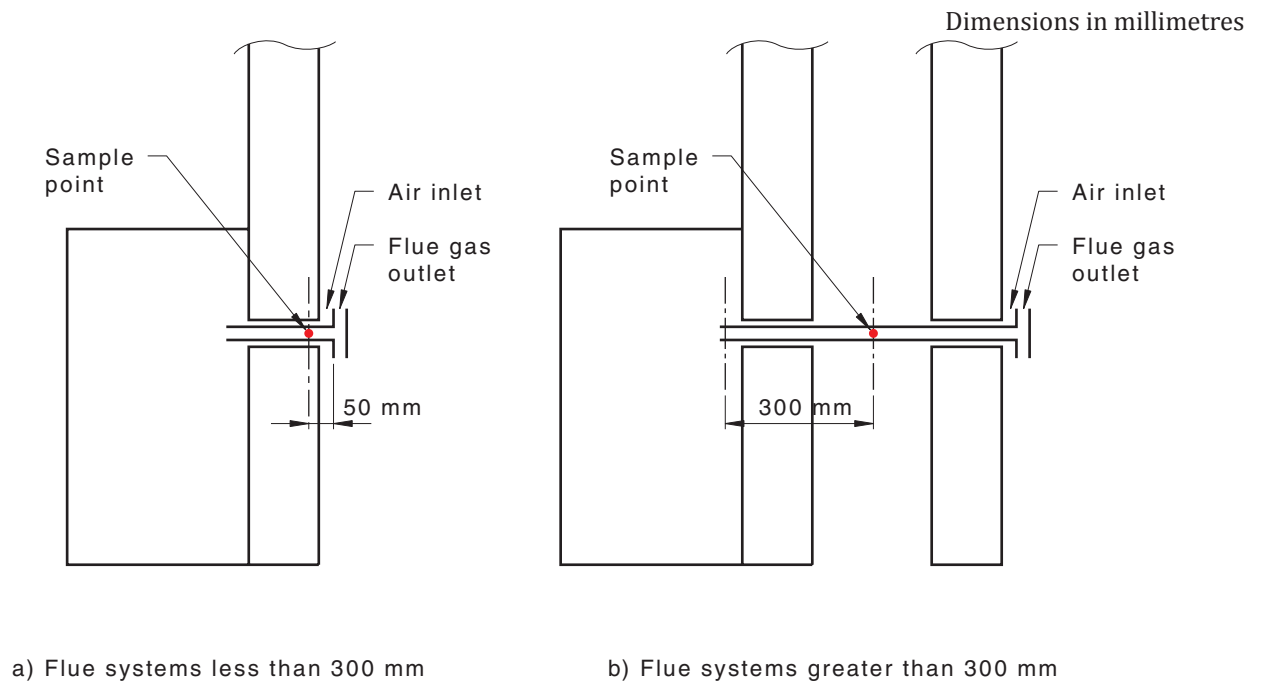
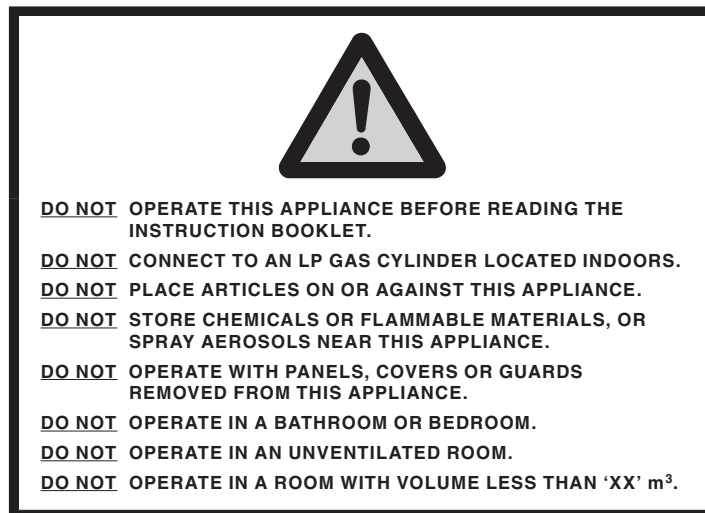


Figure D.5 — Balanced flue appliances

Appendix AA (normative)

Figures AA.101 to AA.106(B)

Figure	Description
AA.101	WARNING LABELS
AA.102	THERMOPILE AND CARRIER
AA.103	RADIANT EFFICIENCY TEST POINTS
AA.104	RADIANT OUTPUT TEST BENCH
AA.105(A) and AA.105(B)	ENERGY LABEL
AA.106(A) and AA.106(B)	EMISSION LABEL



FLUELESS HEATER



FLUED HEATER

The following are the specifications for the above label: (a) Exclamation mark and triangle — Black. (b) Shaded area — Yellow. (c) Height of triangle — 25 mm. (d) Height of text — 2.5 mm

Figure AA.101 — Warning labels