

Guideline for Gas Safety and Compliance
Information required for
Eligible gas device (type A) approval

Petroleum and Gas Inspectorate

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Summary

This guideline outlines the purpose, eligibility and technical information required for approval of eligible individual type A gas device in Queensland.

The Petroleum and Gas Inspectorate regulates the gas industry by applying the *Petroleum and Gas (Production and Safety) Act 2004* (the Act).

The purpose of the Act is to facilitate, regulate and develop a safe, efficient and viable fuel gas industry. This includes ensuring minimum standards for the design, construction and safe operation of gas devices. The Act requires gas devices to be approved by the chief inspector, or a person or body approved by the chief inspector. Approved persons are called Gas Device Approval Authorities.

The Act defines two types of gas device, type A and type B:

- A gas device type A is a device that uses, is designed or is intended to use fuel gas to produce heat light or power, and is prescribed under schedule 6 of the Petroleum and Gas (Safety) Regulation (the Regulation) and
- A gas device is a device that is not a gas device type A, or a gas device type A used outside of its approved use, or a device listed in section 724 of the Act.

Queensland has a regulatory framework that provides two processes for type A gas device approval

1. Approval of mass produced type A gas devices (appliances) through the nationally recognised 'type test' certification scheme, administered by a JAS-ANZ accredited Conformity Assessment bodies (defined in Queensland as a type A GDAA), and
2. Approval of 'eligible' individual type A gas devices for supply, installation and use in Queensland through single device approval by the holder of type A1 Gas Device Approval Authority.

Purpose

The purpose of the individual type A gas device approval process is to provide a cost effective and practical pathway for achieving an acceptable safety outcome for individual type A gas devices that may not be suitable for assessment through a 'type test' scheme. The process was never conceived nor intended as an alternative to the nationally recognised 'type test' scheme for large quantity mass produced appliances. The individual type A gas device approval process is only appropriate in specific scenarios.

In particular the following examples are considered scenarios where this process of assessment and approval may be appropriate;

- Where a manufacturer and/or importer produces or imports one-off or limited numbers of gas devices (type A), thus ensuring an acceptable level of safety while still allowing for market testing and gas appliance design innovation;
- Where a gas device (type A) has an existing approval, but due to repair, alteration, modification, or upgrade the appliance design or operation would fall outside any pre-existing Safety Approval or approval; or
- Where a second-hand gas device (type A), with existing overseas approval, is imported for installation and use, such as those installed in imported pre-owned recreational vehicles.

The approval of an individual type A gas device can only be undertaken by the holder of a type A2 Gas Device Approval Authority, and approval provided under this process only has force in Queensland.

Type A1 Gas Device Approval Authorities cannot approve devices for supply, installation or use outside Queensland.

Eligibility

Due to the structure of the approval process it is recognised that it may not be adequate to assess all type A gas device designs, and some designs maybe beyond the scope of the process. Therefore, a criteria for 'eligible' type A gas devices has been established, and particular designs are excluded from the process.

Where eligibility requirements (Table 1.1) are not met, or a device is excluded (Table 1.2) the device must not be approved by the holder of a type A1 GDAA. Where there is any doubt or lack of clarity,

the chief inspector should be consulted.

Table 1.1 - Eligibility requirements

Design factor	Restriction/condition
Device (appliance) gas consumption	Maximum consumption rate 150MJ/hour
Burner Type	Atmospheric burners ONLY
Burner operating pressure	Maximum burner operating pressure of: 2.75 kPa for LP gas or 1.00 kPa for natural gas
Burner Management Systems	Certified to Australian requirements
Flame supervision	Thermocouple or flame rectification/ionisation ONLY
Flue type/design	Natural draught or power flue ONLY (as defined in AS 5263.0 'Gas appliances – general requirements')
Gas components and fittings	To comply with Australian requirements

Table 1.2 - Excluded gas devices

Gas device design/use	Reason for exclusion
Devices using a fuel gas that does not meet the fuel gas quality and characteristics prescribed for consumers in chapter 7 of the Act	Due to the elevated risks associated with biogas, hydrogen and other substances prescribed as fuel gas appliances using any gas other than standardised LP gas or natural gas are to be assessed for approval by the holder of a type B gas device approval authority.
Devices that are fuelled by way of/or include a fuel gas canister. This includes but is not limited to butane canister cookers (lunch box cookers), camping heaters, and canister lamps/lights	Safety related functions of this type of appliance can only be assured through rigorous laboratory testing. There is an elevated level of risk due to proximity of canister to heat source, reliability of shut-off and ejection systems.
Devices that include a process to remove particles or odours from combustion product discharge through secondary combustion ('after burner')	Devices that perform incineration or include 'after burners' or 'thermal oxidisers' may include complex control systems and may produce higher operating and combustion product temperatures
"Yum-Char Trolley" – mobile food cabinet, used for heating/warming food through a direct heating or indirectly through a heating medium of water or oil, and includes an LP gas cylinder within the cabinet	There is an elevated level of risk due to the proximity of the appliance to the public in crowded spaces. The proximity of the LP gas cylinder to the heat source. The mobile nature of the appliance and spillage of heated liquids.
Ducted air heaters	The construction and integrity of the heat exchanger and related ducting can only be assured through rigorous laboratory testing, and confirmed through quality assurance of material specifications.
Gas air conditioners with the capacity to consume no more than 500MJ/hour	There is no current Australian Standard to which this style of appliance can be tested. Safety device requirements are not defined.
Portable gas generators with the capacity to consume no more than 500MJ/hour	There is no current Australian Standard to which this style of appliance can be tested. Safety device requirements are not defined.
Indoor flue-less room heaters	High risk appliance – (flue-less as defined in AS 5263.0 'Gas appliances – general requirements')

Technical requirements

The information required for the purpose of assessment and approval of an 'eligible' type A gas device will depend on the design and complexity of the device. Each type 1 GDAA is required to have a documented process for approving gas devices under their authority. Each type 1 GDAA may have slightly different requirements, but as a minimum, the following requirements will be part of the assessment:

Instructions

- Gas equipment shall be accompanied by an appropriate set of installation, operating and maintenance instructions. Instructions and warning notices shall be in the English language and include appropriate diagrams, pictures or drawings
- Instructions for installation shall contain all information required for the purpose of installation. In particular the instructions shall specify:
 - the type of gas to be used
 - the gas supply pressure and gas equipment operating pressure at a specified point;
 - the ventilation requirements
 - the conditions for disposal of combustion products and
 - any special requirements
- The instructions for use and maintenance (intended for the user) shall contain all the information required for safe use, and shall particularly draw the user's attention to any restrictions on use or special precautions required to ensure safety

Markings

- Each device shall be clearly marked in the English language in a permanent manner with:
 - the name or registered trade-name or mark of the manufacturer, or supplier
 - means to identify the specific model
 - the type of gas to be used
 - appliance burner operating pressure(s)
 - gas consumption rate (input rating)
 - required gas supply pressure
 - mark of GDAA holder and
 - the approval number
- Warning notices shall clearly state:
 - the gas type and supply pressure
 - any restrictions on installation and use, in particular restrictions whereby the equipment shall be installed and operated outdoors only or only in areas where there is sufficient ventilation
- Controlling devices shall be clearly and permanently marked and have appropriate signs to indicate correct operation

Design and construction

- Materials used in the construction of devices shall be appropriate for their intended purpose and able to withstand the environmental, physical, chemical and thermal conditions to which they will foreseeably be subjected.
- When used in accordance with the supplied instructions, no mechanical instability, distortion, breakage or undue wear will compromise safety
- Controls and safety devices are suitable for their intended application
- Condensation from flue gases produced at the start-up or during use shall not affect the safety of gas equipment
- The risk of explosion is minimised in the event of a fire of external origin
- Water and inappropriate air penetration into the gas circuit does not occur
- They are electrically safe
- All pressurized parts shall withstand the mechanical and thermal stresses to which they may be subjected without any deformation affecting safety
- The failure or partial failure of any one safety controlling or regulating device does not lead to an unsafe situation
- If equipped with safety devices and controlling devices, the functioning of the safety devices shall not be compromised by those of the controlling devices
- All adjustable components, preset during manufacture or commissioning, shall be protected from adjustment by the user
- Controlling devices shall be designed and protected:
 - to avoid accidental manipulation to minimize the dangers to children and infirm and elderly persons
 - to minimize mechanical hazards to persons including the installer, service person or user

Note: Mechanical hazards include sharp points, corners or edges, and hazards from moving parts

- The device has adequate means of support and shall be stable or remain safe when subjected to anticipated external forces

Note: External forces include those from seismic activity and any other force that might tend to overturn a freestanding appliance. In most cases restraint or protection against seismic acceleration is adequate if effective for accelerations up to 1g

- Any part of gas equipment that requires maintenance for safety purposes shall be readily accessible

Performance requirements

- operation shall ensure:
 - in the event of normal fluctuation of the gas supply pressure it continues to operate safely
 - abnormal fluctuation of the gas supply pressure or failure of the gas supply or its restoration does not lead to an unsafe situation
 - safe operation is maintained in the event of expected gas quality variations

- any gas leakage is minimized and cannot give rise to a hazardous situation
 - gas release during ignition, re-ignition and after flame extinction is limited
 - unburned gas does not accumulate to a dangerous level during operation.
- When used in accordance with the supplied instructions:
 - ignition and re-ignition is reliable and complete
 - burner cross-lighting is assured
 - flame stability is assured
 - flame abnormality is avoided
 - the emission of substances harmful to health is minimized
 - no fire hazard arises
 - there is no unintended release of combustion products
- When designed for connection to a flue for the removal of combustion products shall be so constructed that, when the appliance and flue system are installed in accordance with the supplied instructions, abnormal draught conditions do not result in dangerous release of combustion products
- When installed and used in accordance with supplied instructions, local combustible surfaces shall not reach temperatures in that create a hazard
- Surface temperatures of appliance controls intended to be handled shall not present a danger
- Surface temperature of parts of appliances that are likely to be touched shall not under any operating conditions present a danger