TYPE B GAS DEVICE
APPROVAL PROCESS

A guide to the Type B industrial gas device approval and installation process under the
Petroleum and Gas (Production and Safety) Act 2004
Guideline on the certification and installation approval processes for Type B (industrial) gas devices under the Petroleum and Gas (Production and Safety) Act 2004

Scope
This guideline has been developed by the Petroleum and Gas Inspectorate, Safety and Health, Department of Employment, Economic Development and Innovation. Further information has been obtained from the Department’s website http://mines.industry.qld.gov.au/safety-and-health/certifying-gas-devices.htm.

The guide outlines the processes and responsibilities of industry participants involved in safely approving a Type B industrial gas device for use. The guide is aimed at helping all parties, including appliance manufacturers and suppliers, gas suppliers and gas industry consultants, appliance installers and appliance owner and operators.

All Type B gas devices must go through the approval process including devices not connected to a fuel gas network i.e. devices in the upstream sector such as in field gas processing plants and pipelines.

Introduction
The Industrial / Type B gas device approval process provides a series of checks and balances to ensure that the devices meet the safety requirements, relevant standards and all regulatory obligations before and when a Type B device is installed.

When a Type B gas device is designed, constructed and installed, the Petroleum and Gas (Production and Safety) Act 2004 (Qld) (P&G Act) essentially requires two stages of certification/approval of the device:

1. The Chief Inspector or a person or body approved by the Chief Inspector (a Type B approving authority), must approve the gas device for sale, installation or use under s. 733(1).
2. An gas installer either working under a gas work authorisation granted under s. 728C or deemed competency under a safety management plan for an operating plant as per s727 (2) must certify the installation (Certification under s. 734(2) for non-operating plant and s. 697 for operating plant).

As an example the typical process that might be required to install a standard small to medium industrial gas device is summarised in Figure 1 and similarly for a large industrial gas device in Figure 2.

This document describes the obligations of manufacturers/suppliers, installers and users of Type B industrial gas devices under the P&G Act. Each person in the supply chain has some obligations before the gas device is offer for sale, installed or used.
**Type B Classes**

A Type B device is determined under section 724 of the *Petroleum and Gas (Production and Safety) Act* 2004 as:

A gas device (type B) is a device used, or designed or intended for use—
(a) for a purpose mentioned in subsection (2) that has not been certified as mentioned in subsection (1); or
(b) for refrigeration for which gas is the refrigerant; or
(c) as a feed stock in a manufacturing process.

Examples of gas devices (type B)—
• a fuel gas system for a motor vehicle or vessel
• a major industrial plant
• a refrigeration system for which gas is the refrigerant

Type B devices are industrial and large commercial devices and the definition includes all gas devices that are not Type A devices. It is considered that the term ‘device’ includes the device itself and all fittings and control systems for its use downstream from the appliance isolation valve.

Type B devices have been divided into three ‘classes’ of Type B devices based on the gas usage capacity and complexity (and hence some indication of potential risk) of the gas device (see Appendix I). A number of criteria define each of the three classes. The three classes include simple devices that use less than 5GJ/hr (Class S); Class C devices between 5GJ/hr and 50GJ/hr and Class M devices greater than 50GJ/hr.

Approving authorities and authorised installers will be authorised to approve/install devices of one or more of these classes.

**Approving Authority process**

Type B approving authorities play a key role in ensuring the Type B appliance meets the design requirements of the relevant standards. Under s733 of the P&G Act, the Type B approving authority approves that the design of a Type B gas appliance, whether new, relocated or modified after installation, complies with the current statutory requirements.

Type B approving authorities can be ‘commissioned’ to approve the device by either the equipment supplier, the owner/proposed owner or the proposed installer dependant on the project type and arrangements.

Approvals are made on the basis of a submission from the gas appliance manufacturer/supplier or in the case of some devices the operators/future owner of the device or the proposed gas installer. The submission itself should meet the requirements of AS3814. If satisfied the approving authority will issue a Type B Gas Device Approval Certificate {Form PGA733(2)AA}. An authorised Type B installer can only install a Type B device if the device has been approved.

A copy of the Type B Gas Device Approval Certificate will be provided to the owner, one copy to the office of the Chief Inspector, Petroleum and Gas and one retained by the approving authority.
Type B approving authorities are approved by the Chief Inspector to undertake this role. The approval of the Chief Inspector under s733(1) of the P&G Act will be with respect to one or more of the three classes of gas devices (see Appendix I) and may be limited to a defined level within a class. The approval may also have further conditions, depending upon the qualifications and experience of the Type B approving authority. In each case, the Type B approving authority must only approve devices in accordance with their approval class and level and are expected to only work inside their area of competence regardless of the approval class.

Example: An approving authority is authorised to approve S4 and C3 devices. The authority provides s733 (1) approval to devices meeting the S criteria up to a gas usage rate of 5000MJ/hr. The authority may also install these devices. The authority may also approve all gas devices with a gas usage rate up to 20GJ/hr for installation by others.

Type B approving authorities are required to undertake their approval in accordance with the Type B approving authority ‘Code of Conduct and Type B Gas Device Approval Guidelines’. This includes compliance with relevant standards and in particular AS3814. Variations to preferred standard requirement can only be accepted via a formal process as outlined in section 7 of the Petroleum and Gas (Production and Safety) Regulation 2004.

In this case the endorsement of the Type B approving authority should also be provided along with the risk assessment /evidence as required in that section.

Records of all approvals made must be kept and an approving authority is subject to audit by the Chief Inspector at any time. The Chief Inspector may cancel or suspend the approval of the Type B approving authority.

Modifications
Approval to undertake modification to a gas device will require re-approval by the Type B approving authority. Like for like replacement of parts or equipment does not fall under the definition of modification. That is if a part if replaced by exactly the same part, it is not a modification and there is no need for additional approval/action. However if the part is not exactly the same the key questions to consider are:

- Does the replacement change the safety integrity of the current system?
- Does the change take the gas appliance out of its original certification criteria?

The process to be followed in seeking reapproval is detailed in the ‘Code of Conduct and Type B Gas Device Approval Guideline’.

A major modification that clearly impacts on the safety integrity of the current system or takes the gas appliance out of its original certification criteria will have to undergo the normal submission and approval process.
Relocation of devices
Relocation is not defined in AS3814 but is taken to mean relocation from the current
to any other location including on the same premise. Therefore if a device is
relocated it will need to be resubmitted for approval. However, if the device has been
approved under s733 of the P&G Act (i.e. approval was made post 1 January 2005), the
environmental conditions are the same (e.g. ventilation) and the device has been
maintained and serviced appropriately (AS3814: 2009 Appendix G provides a guide) then
re-approval is not required when relocating a device. Of course if the device is dismantled,
modified as part of the relocation then the requirements for reapproval outlined
above would apply.

Examples:
- Reconnection of simple ‘plug in’ appliances such as small kilns would not need reapproval.
- Moving a gas fired boiler and associated gas train and controls to another building would need reapproval.

Manufacturers/Suppliers
When the P&G Act was introduced manufacturers and suppliers had a specific obligation
under what was s733 (1) of the P&G Act to ensure the gas device meet the required safety
requirements (standards). This provision was removed in October 2007 as it was
recognised that plant designed and built overseas for a world wide market cannot
specifically be designed to Australian standards. It was also difficult to ensure compliance
particularly at point of sale or import. At the operating plant level a similar requirement
remains under s696:

“The person (designers/manufacturer/supplier) must take reasonable steps to ensure the
plant or equipment, as designed, imported, manufactured, modified or supplied, complies
with the safety requirement.”

Changes to the Act are currently being contemplated to impose a universal requirement on
the importer/supplier of a Type B gas device/plant to ensure the device is capable of
meeting the safety requirements and the purchaser is made aware of the certification
requirements.

Variations to preferred standard requirement can only be accepted via a formal process as

Commissioning
Commissioning is gas work and must be undertaken under a gas work authorisation. If the
commissioning person is a manufacturer or manufacturer’s agent or a gas installer from
interstate they must have their own Queensland gas work authorisation or they must be
deemed competent to undertake the work and work under the installer’s authorisation. The
authorisation holder must adopt and implement a commissioning plan for the gas device.

Where appropriate, prior approval for commissioning gas can be provided by the Type B
approving authority either by a separate approval certificate (clearly worded) or by letter.
This approval will provide for a period during which commissioning gas can be provided.
Further extension can be sought from the approving authority. The final approval of the gas
device must always be on the ‘Type B Gas Device Approval Certificate’ [Form
PGA733(2)AA].

The approving authority must oversee the commissioning of all ‘major project’ gas work to
ensure safety interlocks and controls operate correctly and valve train and burner
management systems are installed in accordance with initial approval provided by the
approving authority.
Installers

All gas work on Type B devices must be undertaken either under a relevant gas work authorisation or if the gas work is carried out at an operating plant under a safety management plan, (other than a generic safety management plan), and the person carrying out the work has been assessed as competent to carry out the work.

- A gas work authorisation is provided to an organisation and any person working under the authority of the authorisation must be by competent to undertake the work performed. Gas Work Authorisations may be restricted to particular type and size of devices.
- Installers working under the safety management plan at operating plant must be deemed competent. This competency must be demonstrated with adequate documented evidence (e.g. qualification, training records, experience etc).

Note: Supply pipe work to a Type B device may be undertaken by the holder of gas work licence provided they are competent to do so. This would include pipe work up to the first isolation valve for the device. A gas compliance certificate must be issued by the licence holder for that work.

Installation must be carried out in accordance with relevant safety requirements and standards including AS5601 gas installations.

If the gas device has a gas consumption capacity of greater than 100MJ/hour the installer must notify the fuel gas network operator of the proposed work and the proposed demand on the network before the work is carried out.

The installer must issue a certificate on completion of the installation work. License or authorisation holders must issue a gas system compliance certificate [Form PGA734] immediately after the installation has been completed and before the system is operational (i.e. before the owner/operator operates the appliance). A copy must be provided to the owner/operator and also to the gas supplier (network operator).

Installers at operating plant who are non license/authorisation holders must provide an s697 certificate to the owner/operator of the device and to the Chief Inspector within 5 business days of completing the installation. Section 697 forms [Form PGA 697(3)] can be obtained from the office of the Chief Inspector via gassafe@deedi.qld.gov.au or phone 3239 6888.
**Users/owner/operators**

Proposed owners/operators should ensure the device they are purchasing or will operate has been approved and installed in accordance with safety requirements. They should ensure they receive copies of the Type B approving authority certificate [Form PGA733(2)AA] and the installers certificate [Either Form PGA734 or Form PGA734 (2) AA]. The certificates are important documents and should be retained for the life of the device. Gas suppliers will require this documentation before supply is first provided.

If the device is modified then re-approval may be required (see modifications section above). A Type B approving authority should be contacted to verify if re-approval is required.

Type B devices should be maintained in accordance with the manufacturer’s instructions. Appendix G of AS3814:2009 also provides some guidance on maintenance. Most maintenance will involve gas work. Gas work (which includes servicing and decommissioning) can only be undertaken by persons working under a relevant Queensland gas work authorisation. Proof of this authorisation should be obtained before allowing any person to undertake gas work.

If an authorisation holder or an inspector notifies the owner that the gas system is unsafe the gas system must not be used until it is safe. A gas supplier cannot supply gas to the gas device if they know that gas system does not comply with relevant standards and legislative requirements.

**Gas Suppliers (network operator)**

The operator of the fuel gas network (or other gas supplier) must only supply commissioning gas after written confirmation from the Type B approving authority that the gas device meets the design safety requirements. Gas must only be provided for the period stated by the approving authority.

Gas supply for operations can only be provided upon receipt of an installers certificate [Either Form PGA734 or Form PGA734 (2) AA]. The network operator must keep records of the gas system supplied with fuel gas through the network. These records include the compliance certificate number for the installation and number of the authorisation/licence holder who did the work.

If the fuel gas network operator becomes aware (or should be aware) that the gas system for gas device does not comply with relevant standards and legislative requirements then the network operator must not supply gas to the gas device. This would include advice that a device is not approved or if routine inspection identified non compliances.

The network operator is obligated to ensure competent persons attend any incident as expeditiously as possible that involves or may involve gas supplied through the network regardless if the location of the incident is part of the network or not.
**Relationship between ‘approving authorities’ and installers**

Ideally approving authorities should not be providers of installation services for Type B gas devices, however, it is recognised that in Queensland this is not fully achievable. The following restrictions therefore apply:

1. Approving authorities approving **Class S devices** may also hold a Gas Work Authorisation and undertake installation work. They will also be able to ‘self certify’ Class S devices, that is approve a Class S device and install that device.

2. Approving authorities approving **Class C devices** may also hold a gas work authorisation and undertake installation work. However they cannot ‘self certify’ Class C devices. However, an approving authority may be able to approve Class C devices for installations that are being installed by a separate business unit in the same organisation. The ability to do this will be subject to approval by the Chief Inspector after examination of the authorities business and management practices submitted with the initial application. Note for C4 devices it is a requirement that the approving authority must also sign off on installed/constructed system including commissioning.

3. Approving authorities approving **Class M devices** cannot install a Class M device that they have approved under s733(2). The installation must be undertaken by a separate gas work authorisation holder not associated with approving authority. In this case it is a requirement that the approving authority must also sign off on installed/constructed system including commissioning.
Appliance manufacturer/supplier/installer/owner provides appliance submission to approval/certification body

Type B approving authority

Examines design and approves device for installation — [Form PGA733 (2)AA – Copy to device operator/owner, gas supplier and Chief Inspector)]

Gas supplier on receipt of approval certificate or letter can supply gas for commissioning

Device is installed and commissioned by gas work authorisation holder

Gas System Compliance Certificate issued by Installer - s734(3)
[Form PGA734 (3)]
Copy to device operator/owner and gas supplier
FIGURE 2: APPROVAL/CERTIFICATION REQUIREMENTS FOR TYPICAL LARGE TYPE B INDUSTRIAL GAS INSTALLATION (CLASS C4 and M)

Customer specification for gas device

Tender / purchase gas device

Require device to be able to meet safety requirements

Supplier / contractor/ owner/operator

Engages Type B approving authority (Approved for relevant Class of devices)

Company / Contractor / Sub-contractor / Installer

Examines design and approves device for installation & commissioning by nominated commissioning person – (Preliminary approval of device to allow commissioning gas e.g. letter to installer and supplier)

Device commissioned and installation finalised (under GWA or SMP of operating plant)

Gas System Compliance Certificate issued by Installer - s734(3) and s697 for operating plant

[Form PGA734 (2) AA and Form PGA 697(3)]

For Class M and Class C4 Devices the Type B approving authority would also check commissioned/final installed device before completed approval certificate. [Form PGA733(2)AA –Copy to device owner, gas supplier and Chief Inspector]

Certification/approval point
APPENDIX I  Type B Approving Authority Classes

Approving authorities and authorised installers will be authorised to approve/install one or all of three “classes” of Type B devices based on the gas usage capacity and complexity (and hence some indication of potential risk) of the gas device. A number of criteria define each of the three classes. To fall under the Class S category all criteria must be satisfied as shown. Class C and M include devices with any of the listed criteria and are defined by gas usage. Within Class S and C sub levels are provided based on the gas usage rate. Approving authorities/installers may have other restrictions or conditions imposed including limitations to certain devices within that Class.

<table>
<thead>
<tr>
<th>Factor/device type criteria</th>
<th>CLASS S (Simple Devices) &lt;5 GJ/hr</th>
<th>CLASS C (Complex Devices) &lt;50 GJ/hr</th>
<th>CLASS M (Major Projects) &gt;50 GJ/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application / Restrictions</td>
<td>Allows for approving authority to also install devices</td>
<td>Approving authority must be independent(^1) of installer. NB For C4 devices the approving authority must also sign off on installed/constructed system including commissioning.</td>
<td>Approving authority must be independent of installer. NB Approving authority must also sign off on installed/constructed system including commissioning.</td>
</tr>
<tr>
<td>Gas usage rate restriction</td>
<td>S1 &lt; 200 MJ/hr&lt;br&gt;S2 &lt; 500 MJ/hr&lt;br&gt;S3 &lt;1000 MJ/hr&lt;br&gt;S4 &lt;5000 MJ/hr</td>
<td>C1 &lt;5 GJ/hr&lt;br&gt;C2 &lt;10 GJ/hr&lt;br&gt;C3 &lt;20 GJ/hr&lt;br&gt;C4 &lt;50 GJ/hr</td>
<td>Unlimited</td>
</tr>
</tbody>
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Device Type Criteria

1. Atmospheric Burners
   - Yes
   - Yes
   - Yes

2. Forced /Induced Draft Burners
   - Yes (up to 1000MJ/hr only)<br>Yes
   - Yes

3. Liquid LPG burners
   - No
   - Yes<br>Yes

4. Programmable Electronic Systems\(^2\)
   - No<br>Yes<br>Yes

5. Explosion relief to AS1375
   - No<br>No<br>No<br>Yes<br>Yes

6. Purge Volume >10 m3
   - No<br>No<br>No<br>Yes<br>Yes

7. Max Gas Pressure
   - 200kpa<br>No limit<br>No limit<br>No limit

8. Unusual appliances\(^3\)
   - No<br>No<br>No<br>Yes<br>Yes

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\(^1\) For Class C Devices, a separate business unit with a separate management structure may be considered to be independent if approved by the Chief Inspector (see next page).

\(^2\) There are no restrictions with respect to electronic flame detectors or flame safeguards provided they are AGA certified and comply with AS3814:2005 C1 2.26.3. Note Class S does not include any device with a PES system.

\(^3\) An unusual appliance is a purpose built “once only” or rare configuration such as a theatrical effect.