

Australian Standard[®]

**Industrial and commercial gas-fired
appliances**



This Australian Standard® was prepared by Committee AG-011, Industrial and Commercial Gas-Fired Appliances. It was approved on behalf of the Council of Standards Australia on 30 June 2009.

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The following are represented on Committee AG-011:

- Energy Networks Association
 - Engineers Australia
 - Gas Appliance Manufacturers Association of Australia
 - Gas Technical Regulators Committee
 - LPG Australia
 - Major Commercial/Industrial Gas Equipment Manufacturer
 - Major Industrial Gas Installations
-

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard[®]

Industrial and commercial gas-fired appliances

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PREFACE

This Standard was reviewed by the Standards Australia Committee, AG-011, Industrial and Commercial Gas-Fired Appliances, to supersede AS 3814—2005, *Industrial and commercial gas-fired appliances*.

This Standard incorporates Amendment No. 1 (June 2010). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide uniform minimum requirements for the safe operation of gas-fired industrial appliances, and other large appliances used for commercial applications, which are not covered by any other Standard.

This Standard should not be regarded as a design specification or as an instruction manual; it has been prepared with due regard for gas rules and regulations now in force. In its preparation, consideration has been given to—

- (a) continuity of satisfactory operation of appliances and equipment;
- (b) the prevention of fire hazards, and explosions associated with fuel use and processes;
- (c) gas rules and regulations now in force;
- (d) the prevention of injury to persons or property;
- (e) the provision of satisfactory permanent access for service; and
- (f) relevant international and overseas Standards.

Explosions are the main hazard on the firing side of the equipment covered by the Standard, the basic cause being ignition of a combustible mixture in the combustion chamber or associated ductwork. The magnitude and intensity of the explosion will depend on both the quantity of combustibles present and the proportion of air with which the combustibles are mixed.

Explosions may be the result of one or more of the following:

- (i) Improper design of equipment or control systems.
- (ii) Equipment or control system malfunction, including valve leakage.
- (iii) Interruption and restoration of gas or air supply causing loss of flame followed by delayed ignition of the resultant accumulation of a combustible mixture.
- (iv) Flame failure on a burner and subsequent ignition of the resultant accumulation of a combustible mixture.

The presence of a well-trained, reliable and competent operator provides a major contribution to safety.

AS 3814—2005 has been substantially revised with the objective of removing ambiguity where it may have been experienced in the past. To this end a new section on gas/air ratio control has been added. Several other sections have been expanded to cater for changing technology, for example, the use of LEL monitoring or the inclusion of systems that are commonly found on gas-fired turbines that were not previously covered adequately. The appendices have been expanded to cover information on maintenance of appliances, the configuration of gas/air ratio control systems as well as valve train requirements for gas-fired turbines. The appliance field check sheet has been revised to cover the new clauses and sections added to the Standard.

The user should be aware that in many jurisdictions in Australia, this Standard is deemed as a ‘prescribed standard’ to which compliance may be mandatory. While Australian and New Zealand Standards mostly do not do so, all the Australian and New Zealand Technical Regulators agree that this Standard should include appropriate requirements for particular components to be certified by a recognized third party assessment body.

The terms ‘normative’ and ‘informative’ have been used in this Standard 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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STANDARDS AUSTRALIA

Australian Standard
Industrial and commercial gas-fired appliances

SECTION 1 SCOPE, APPLICATION AND DEFINITIONS

1.1 SCOPE**1.1.1 General**

This Standard provides minimum requirements for the design, construction and safe operation of Type B appliances that use town gas, natural gas, simulated natural gas, liquefied petroleum gas, tempered liquefied petroleum gas or any combination of these gases either together or with other fuels.

Construction requirements given relate only to matters affecting gas-firing or to any interconnection between the gas-firing system and the safety requirements of the appliance.

NOTE: Additional information regarding safety principles for industrial appliances is given in AS 1375.

The Standard does not cover all the requirements for the safety of the process carried out in the appliance. Other statutory and regulatory requirements may be applicable to the appliances and/or installations that fall within the scope of this Standard. It is the installer/manufacture's responsibility to ensure that appliances and/or installations comply with these requirements.

Installation requirements for appliances covered by this Standard are detailed in AS 5601.

1.1.2 Exclusions from Standard

The following appliances are excluded from this Standard:

- (a) Manually operated bunsen type burners.
- (b) Simple atmospheric burners that are not fitted into a combustion chamber and burn in an open ventilated space under the control of an operator.
- (c) Engines other than stationary engines.

1.2 APPLICATION**1.2.1 General**

The requirements of this Standard shall be used in conjunction with, but do not take precedence over, the requirements of the technical regulator. The technical regulator may determine the extent of application of this Standard.

This Standard applies to—

- (a) the appliance;
- (b) the component parts of the appliance whether supplied with the appliance or separately; and
- (c) Type B appliance approvals commenced after its publication date.