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AS 1056.1—1985  
UDC 621.365:683.97

# Australian Standard<sup>®</sup> 1056.1—1985

Amdt 1 - 1986  
Amdt 2 - 1987  
Amdt 3 - 1988-04-05

## STORAGE WATER HEATERS Part 1—GENERAL REQUIREMENTS



**1056 Storage water heaters**  
**1056.1—1991 General requirements**  
(In Professional Package 50E) A4 23pp G

Specifies general construction and performance requirements for electric storage water heaters of 25 L to 630 L rated hot water delivery. (Requirements for gas water heaters are specified only by reference to Code AG 102 published by AGA/ALPGA.) To be read in conjunction with AS 1056.2 or AS 1056.3 as appropriate.

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**STANDARDS ASSOCIATION OF AUSTRALIA**  
*Incorporated by Royal Charter*

This Australian standard was prepared by Committee EL/20, Electric Water Heating Appliances. It was approved on behalf of the Council of the Standards Association of Australia on 12 February 1985 and published on 10 May 1985.

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The following interests are represented on Committee EL/20:

Australian Consumers Association  
Australian Electrical and Electronic Manufacturers' Association  
Australian Gas Association  
Confederation of Australian Industry  
Electricity Supply Association of Australia  
Engineering and Water Supply Department, South Australia

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*This standard was issued in draft form for comment as DR 84054.*

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**AMENDMENT No 3**  
**to**  
**AS 1056.1—1985**  
**STORAGE WATER HEATERS**  
**Part 1: GENERAL REQUIREMENTS**

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**REVISED TEXT**

The 1985 edition of AS 1056.1 which was amended in March 1986 and March 1987 is further amended as follows; the amendments should be inserted in the appropriate place.

**SUMMARY:** The following sections of the Standard are covered by this Amendment: Clauses 3.1.1 and 5.2.

Published on 5 April 1988.

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AMDT  
No 3  
APR.  
1988

**Page 12. Clause 3.1.1.**

In line 4, *add* an additional value: '6000'.

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AMDT  
No 3  
APR.  
1988

**Page 15. Clause 5.2.**

*Add* a new Item (g):

- (g) If the water heater is fitted with an anode, a warning statement along the following lines:
- 'If the hot water system is not used for two weeks or more, a quantity of hydrogen gas which is highly flammable may accumulate in the water heater. To dissipate this gas safely, it is recommended that a hot tap be turned on for several minutes at a sink, basin, or bath, but not at a dishwasher, clothes washer, or other appliance. During this procedure there must be no smoking, open flame, or any electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make an unusual sound as with air escaping.'
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**AMENDMENT No 2**  
to  
**AS 1056.1—1985**  
**STORAGE WATER HEATERS**  
**Part 1—GENERAL REQUIREMENTS**

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**REVISED TEXT**

The 1985 edition of AS 1056.1 which was amended in March 1986, is further amended as follows: the amendments should be inserted in the appropriate place.

**SUMMARY:** The following sections of this standard are covered by this amendment: Clauses 1.2, 3.2.1, 3.2.2, and 3.2.3.

Published on 2 March 1987.

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AMDT  
No 2  
MAR.  
1987

**Page 5. Clause 1.2.**

*Add* the following Note at the end of the clause:

NOTE: A number of electricity supply authorities specify compliance with various performance and construction requirements of this standard in order that the water heater be eligible for supply under certain tariffs.

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AMDT  
No 2  
MAR.  
1987

**Page 12. Clause 3.2.1.**

*Delete* the Note at the end of the clause.

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AMDT  
No 2  
MAR.  
1987

**Pages 12 and 13. Clause 3.2.2.**

Line 4. *Delete* '50°C' and *substitute* '60°C'.

Paragraph 2. *Delete* the line in bold type (but retain the Note).

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AMDT  
No 2  
MAR.  
1987

**Page 13. Clause 3.2.3.**

Title. *Delete* clause title and *substitute* :

**3.2.3 Thermostat settings.**

Note 2. *Delete* first three lines and *substitute* :

2. It is recommended that thermostats be set at not less than 60°C.  
The following points should be considered:

*Add* a new item (d):

- (d) A minimum setting (cut-out) temperature of 60°C is recommended on the advice of the Department of Health, N.S.W., that Legionella bacteria do not survive in temperatures above 55°C. A thermostat set to 60°C could have a cut-in temperature of about 55°C.
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AMENDMENT No 1  
to  
AS 1056.1—1985  
**STORAGE WATER HEATERS**  
**Part 1—GENERAL REQUIREMENTS**

REVISED TEXT

The 1985 edition of AS 1056.1 is amended as follows; the amendments should be inserted in the appropriate place.

*SUMMARY:* The following sections of the standard are covered by this amendment: Clauses 2.3 and 5.1.1, Appendices B4.4, B6, B8, C4.6 and D.

Published on 3 March 1986.

AMDT  
No 1  
MAR.  
1986

**Page 10. Clause 2.3.**

Item (b). *Delete* '10  $\mu\text{m}$ ' and *substitute* '100  $\mu\text{m}$ '.

AMDT  
No 1  
MAR.  
1986

**Page 15. Clause 5.1.1.**

Item (d). *Delete* text and *replace* with the following:  
'Recommended maximum setting in degrees  
Celsius (see Clause 3.2.3).'

AMDT  
No 1  
MAR.  
1986

**Page 18. Appendix B. Paragraph B4.4.**

Item (a). *Delete* text in parentheses and *replace* with the following:  
'(see Clause 5.1.1(d))'

Item (b). In the equation, *insert* 'maximum' after 'Recommended'.

*Delete* the last sentence and *replace* with the following:

'If the thermostat cannot maintain the above-specified temperature, a suitably calibrated control shall be used.'

AMDT  
No 1  
MAR.  
1986

**Page 19. Appendix B. Paragraph B6.**

Line 3 (equation). *Insert* after 'Heat loss' the words 'per 24 h'.

Line 6 (explanation of symbol 'T'). *Delete* and *replace* with the following:

'T = manufacturer's recommended maximum thermostat setting (see Clause 5.1.1(d)), in degrees Celsius, or 75°C, whichever is the greater'

**Page 19. Appendix B.**

*Insert a new Paragraph B8.*

**B8 EXAMPLES.**

*Example 1* : 250 L water heater with attached feed tank; manufacturer's recommended maximum thermostat setting = 65 °C.

Test

conditions :  $T_A = 22\text{ °C}$   
 $T_W = 74\text{ °C}$

(Check) :  $T_W - T_A = 52\text{ °C}$  (which complies with Paragraph B4.4(a))  
:  $t = 28\text{ h}$   
:  $E = 4.17\text{ kW.h}$   
:  $T = 75$  (not 65—see Paragraph B6)

Calculation : (from equation in Paragraph B6)

$$\begin{aligned} \text{Heat loss} \\ \text{per 24 h} &= \frac{24 (75 - 20) 4.17}{28 (52)} \\ &= 3.78\text{ kW} \end{aligned}$$

(The result should be checked against the appropriate value in Table 2.1, column 2.)

NOTE: This result exceeds the maximum value (3.7kW.h/24h) applicable from 30 June 1986.

*Example 2* : 125 L water heater without feed tank; manufacturer's recommended maximum thermostat setting = 85 °C.

Test

conditions :  $T_A = 19\text{ °C}$   
 $T_W = 87\text{ °C}$

(Check) :  $T_W - T_A = 68\text{ °C}$  (which complies with Paragraph B4.4(b))  
:  $t = 26\text{ h}$   
:  $E = 2.81\text{ kW.h}$   
:  $T = 85$

Calculation : (from equation in Paragraph B6)

$$\begin{aligned} \text{Heat loss} \\ \text{per 24 h} &= \frac{24 (85 - 20) 2.81}{26 (68)} \\ &= 2.48\text{ kW} \end{aligned}$$

(The result should be checked against the appropriate value in Table 2.1, column 3.)

**Page 21. Appendix C. Paragraph C4.6.**

*Delete the last sentence and replace with the following:*

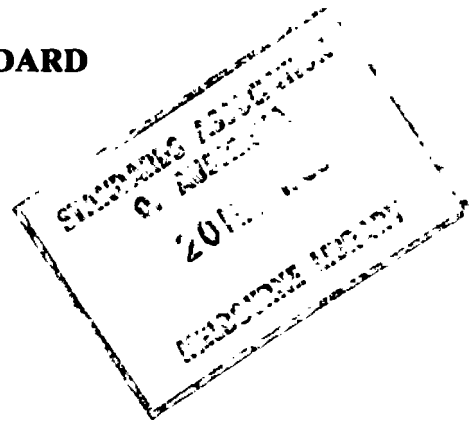
'If the thermostat cannot maintain the above-specified temperature, a suitably calibrated control shall be used.'

**Page 24. Appendix D.**

*Insert a new second item (after 'Nominal temperature setting:'):*

'Manufacturer's recommended maximum setting (see Clause 5.1.1(d)):'

**AUSTRALIAN STANDARD**



# **STORAGE WATER HEATERS**

## **Part 1**

# **GENERAL REQUIREMENTS**

**AS 1056.1—1985**

First published (as AS C316) .....	1957
Revised .....	1965
Revised .....	1970
AS 1056 first published .....	1972
Revised .....	1977
AS 1056.1 first published .....	1985

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## PREFACE

This standard was prepared by the Association's Committee on Electric Water Heating Appliances, to supersede (in part) AS 1056—1977, Automatic Electric Storage Water Heaters with Hot Water Deliveries Ranging from 25 Litres to 630 Litres. It is one of a series of standards covering storage water heaters, the other standards in the series being as follows:

AS 1056.2 Storage Water Heaters, Part 2—Specific Requirements for Water Heaters with Single Shells

AS 1056.3 Storage Water Heaters, Part 3—Specific Requirements for Water Heaters with Composite Shells.

Other standards dealing with water heaters are as follows:

AS 1308 Thermostats and Over-temperature Energy Cutouts for Automatic Electric Water Heaters

AS 1357 Water Fittings for Protection and Control of Unvented Storage Water Heaters

AS 1361 Automatic Electric Heat Exchange Water Heaters

AS 1529 Code of Practice for Installation of Household Type Hot Water Supply Systems

AS 2002 The Installation of Household Type Solar Hot Water Supply Systems

AS 2123 Slow-delivery Type Automatic Electric Storage Water Heaters for Dairies

AS 2712 Solar Water Heaters—Design and Construction

This standard differs from AS 1056—1977 in the following respects:

- (a) The scope has been extended to include Class A gas-fired storage water heaters which are specified by reference to codes published by the Australian Gas Association and the Australian Liquefied Petroleum Gas Association.
- (b) All gaskets in electric water heaters are required to withstand 85°C (see Clause 3.1.2.3).
- (c) As a means of energy conservation, and with effect from 30 June 1986—
  - (i) allowable heat losses in electric water heaters are to be reduced (see Table 2.1); and
  - (ii) electric water heaters are to be fitted with means for the user to adjust the water temperature; alternatively water heaters are to be capable of modification by means of kits to achieve the same result (see Clause 3.2.2).
- (d) Notes are provided concerning maximum thermostat settings (see Clause 3.2.3); however the relevant requirements and recommendations are given in AS 1056.2 and AS 1056.3. The risk of scalding in baths and showers is also mentioned in a note to Clause 3.2.3; however this matter is *outside the scope* of this standard.

This standard specifies that electric storage water heaters comply with AS 3142, Approval and Test Specification for Electric Water Heaters, which contains essential electrical safety requirements. Compliance with AS 3142 may also be required by electricity supply authorities as a condition for connection to their mains. For unvented electric water heaters, compliance with AS 3142 is legally enforced under approvals legislation enacted in all States. Water heaters may also be required to comply with requirements of Water Regulatory Authorities.

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## STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**  
**for**  
**STORAGE WATER HEATERS**

**PART 1—GENERAL REQUIREMENTS**

**SECTION 1. SCOPE AND GENERAL**

**1.1 SCOPE.** This standard specifies requirements for:

- (a) Storage water heaters heated solely by electricity (hereinafter called 'water heaters') having rated hot water deliveries within the range 25 L to 630 L and having heating units of the tubular-sheathed immersion type or the bobbin type.

NOTE: Where non-electric supplementary heating, e.g. from a solar collector or a slow combustion stove, is used, additional requirements may be necessary.

- (b) Class A gas-fired water heaters by cross-reference to Codes AG 102 and AG 109 published by the Australian Gas Association and the Australian Liquefied Petroleum Gas Association (see Clauses 1.3.2 and 1.5.2).

This standard does not apply to heat-exchange water heaters (see AS 1361).

**NOTES:**

1. Water heaters having deliveries in excess of 630 L generally have special requirements. Intending purchasers of such water heaters are advised to include in their specification such requirements of this standard as are relevant to their needs.
2. For the installation of household type hot water systems, see AS 1529.
3. Information to be supplied with enquiries and orders for electric water heaters is given in Appendix A.

**1.2 APPLICATION.** Electric water heaters shall comply with the relevant requirements of this standard and with the requirements of the following standards, as applicable:

- (a) Water heaters with single shells ..... AS 1056.2.  
(b) Water heaters with composite shells .... AS 1056.3.  
*see Amdt 2 (1987)*

**1.3 REFERENCED DOCUMENTS.**

**1.3.1 Standards.** The following standards are referred to in this standard:

- AS 1056.2 Storage Water Heaters, Part 2—Specific Requirements for Water Heaters with Single Shells
- AS 1056.3 Storage Water Heaters, Part 3—Specific Requirements for Water Heaters with Composite Shells
- AS 1308 Thermostats and Over-temperature Energy Cutouts for Automatic Electric Water Heaters
- AS 1361 Automatic Electric Heat Exchange Water Heaters
- AS 1432 Copper Tubes for Water, Gas and Sanitation

AS 1529 Code of Practice for Installation of Household Type Hot Water Supply Systems

AS 1566 Copper and Copper Alloy Plate, Rolled Bar, Sheet, Strip and Foil for General Engineering Purposes

AS 1590 Copper Alloy Threaded Pipe Fittings for Use with Tubes Threaded with Pipe Threads of Whitworth Form

AS 1645 Copper and Copper Alloy Compression Fittings for Use in Water Supply and Hot Water Services

AS 1722 Pipe Threads of Whitworth Form  
Part 1—Sealing Pipe Threads  
Part 2—Fastening Pipe Threads

AS 1939 Classification of Degrees of Protection Provided by Enclosures of Electrical Equipment

AS 2345 An Accelerated Laboratory Test Method for Assessment of the Susceptibility of Brass to Dezincification

AS 2752 Preferred Numbers and Their Use\*

AS 3142 Approval and Test Specification for Electric Water Heaters

AS 3161 Approval and Test Specification for Thermostats and Energy Regulators

**1.3.2 Industrial codes.** The following Codes are referred to in this standard:

AG 102 Approval Requirements for Class A Gas Water Heaters Equipped with Natural Draft Combustion Systems (published by the Australian Gas Association and the Australian Liquefied Petroleum Gas Association)

AG 109 Approval Requirements for Class A Gas Water Heaters Equipped with Forced or Induced Draught Combustion Systems (published by the Australian Gas Association and the Australian Liquefied Petroleum Gas Association)

**1.4 DEFINITIONS.** For the purpose of this standard, the following definitions apply (see also Fig. 1.1).

\*Revision of SAA MP19-1970.