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PRE-VACUUM PRESSURE STEAM STERILIZERS (WITH MECHANICAL AIR REMOVAL)

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STERILIZER, SURGICAL INSTRUMENT AND DRESSING (PRE-VACUUM PRESSURE
TYPE WITH MECHANICAL AIR REMOVAL)]



STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Allied Building Trades Federation of Australia
Australian Capital Territory Health Commission
Australian Medical Association
Confederation of Australian Industry
Department of Health, Queensland
Department of Housing and Construction
Department of Industrial Relations, N.S.W.
Department of Public Works, N.S.W.
Health Commission of New South Wales
Health Commission of Victoria
Institute of Hospital Engineers (Australia)
Metal Trades Industry Association of Australia
National Biological Standards Laboratory
Public Health Department, W.A.
Royal College of Pathologists of Australia
South Australian Health Commission
Sterilizing Research and Advisory Council
Sterilizer Manufacturers Association of Australia
Sterilization & Disinfection Society (Vic.)
Sub-contractors Association of New South Wales

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AUSTRALIAN STANDARD

**PRE-VACUUM PRESSURE
STEAM STERILIZERS
(WITH MECHANICAL AIR
REMOVAL)**

AS 1410—1981

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PREFACE

This edition of this standard was prepared by the Association's Committee on Sterilizing Equipment to supersede the first edition published in 1973. This edition updates Australian requirements for sterilizers for porous loads and in particular the requirements relating to testing.

It should be noted that the standard relates only to equipment supplied with steam from an independent source. It does not relate to sterilizers of a type suitable for installation in a zone of risk associated with the use of flammable anaesthetics.

The methods of testing the sterilizers and the test requirements contained in Appendix C have been taken in their entirety from the British Department of Health and Social Security document 'Health Technical Memorandum 10—Sterilizers'. Acknowledgement is made to the Controller, Her Majesty's Stationery Office, for permission to use this material, which is covered by Crown Copyright.

Other Australian standards dealing with sterilizing and sanitizing equipment are as follows:

AS 1714	Ethylene Oxide Sterilizers (Using Ethylene Oxide/Dichlorodifluoromethane 12%/88% <i>m/m</i> Sterilizing Gas Mixture)
AS 1862	Aeration Cabinets (for Use with Ethylene Oxide Sterilizers)
AS 2182	Portable Electrically Heated Steam Sterilizers (Downward Displacement Pressure Steam Type)
AS 2192	Horizontal Sterilizers (Downward Displacement Pressure Steam Type)
AS 2437	Flusher/Sanitizers for Bed Pans and Urine Bottles

Standards are in course of preparation for drying cabinets, dry heat sterilizers, (hot air type), washer/disinfectors for respiratory apparatus, washer/sanitizers for hospital utensils, and ultrasonic cleaners.

This standard may require reference to the following standards:

AS 1135	SAA Non-ferrous Pressure Piping Code
AS 1169	SAA Medical Agents and Gases Safety Code
AS 1192	Electroplated Coatings of Nickel and Chromium
AS 1210	SAA Unfired Pressure Vessels Code
AS 1250	SAA Steel Structures Code
AS 1271	Valves, Water Gauges and Other Fittings for Boilers and Unfired Pressure Vessels
AS 1324	Air Filters for Use in Air Conditioning and General Ventilation
AS 1349	Bourdon Tube Pressure and Vacuum Gauges
AS 1449	Stainless and Heat-resisting Steel Plate, Sheet and Strip (Coils and Cut Lengths)
AS 1650	Galvanized Coatings
AS 1722	Pipe Threads of Whitworth Form Part 1—Sealing Pipe Threads
AS CB18	SAA Pressure Piping Code Part 1—Ferrous Piping
AS C100	Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment
BS 970	Wrought Steels in the Form of Blooms, Billets, Bars and Forgings Part 4—Stainless, Heat Resisting and Valve Steels
BS 1041	Code for Temperature Measurement
BS 1449	Steel Plate, Sheet and Strip Part 2—Stainless and Heat Resisting Steel Plate, Sheet and Strip
BS 1781	Linen Textiles for use by Government Departments, Hospitals and Local Authorities
BS 3281	Rectangular Metal Boxes for Use in High Vacuum Steam Sterilizers
BS 3970	Steam Sterilizers
ANSI/ASTM	Standard Recommended Practice for Cleaning and Descaling
A 380-80	Stainless Steel Parts, Equipment, and Systems
Health Technical Memorandum 10—Sterilizers, 1980 (British Department of Health and Social Security).	

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STANDARDS ASSOCIATION OF AUSTRALIA**Australian Standard****for****PRE-VACUUM PRESSURE STEAM STERILIZERS (WITH MECHANICAL AIR REMOVAL)****SECTION 1. SCOPE AND GENERAL**

1.1 SCOPE. This standard specifies requirements for pre-vacuum steam sterilizers intended for use in hospitals and other non-industrial applications for the sterilization of porous loads and/or instruments and utensils wrapped in porous material. The sterilizers are fitted with mechanical means for the removal of air and are intended for use with steam supplied from a source heated independently of the sterilizer jacket and chamber.

NOTE: Certain details need to be discussed with the manufacturer at the time of enquiry or order. Appendix A provides information in this regard.

1.2 APPLICATION. This standard applies to the design, manufacture and testing of fully automatic jacketed pre-vacuum sterilizers, which utilize saturated steam, operating at a sterilizing temperature of 134°C (see Clause 3.8.10.4).

NOTE: Sterilizers made to this standard may not be installed in zones of risk associated with the use of flammable anaesthetics or volatile liquids (see AS 1169) nor used for the sterilization of fluids (see Clause 7.1(d)).

1.3 EXPRESSION OF PRESSURE VALUES. Pressure values are gauge pressure at sea level, unless otherwise specified.

SECTION 2. MATERIALS OF CONSTRUCTION

2.1 GENERAL. Materials used in the construction of the vessels shall comply with AS 1210.

2.2 CHAMBER AND JACKET, DOOR RING AND DOOR. One of the combinations of materials given in Table 2.1 should be used.

Where dissimilar materials, which may cause galvanic action, are used in the manufacture of pressure and non-pressure retaining parts, the surfaces of such materials shall be protected by electroplating or other forms of protection.

NOTE: The purchaser should specify the materials required at the time of enquiry or order (see Appendix A).

2.3 MATERIALS FOR CONNECTIONS WELDED TO THE CHAMBER. Materials for connections welded to the chamber should be as listed in Table 2.2.

2.4 MATERIALS FOR CONNECTIONS WELDED TO THE JACKET. The material for connections welded to the jacket shall be compatible with the jacket material.

2.5 PIPEWORK AND PIPE FITTINGS. Pipe-work and pipe fittings shall comply with AS 1135 or AS CB18, Part 1.

2.6 WELDING CONSUMABLES. Electrodes and filler rods used in welding and brazing processes and other welding consumables, shall comply with the relevant Australian or equivalent standards.

2.7 FRAMEWORK. The material for the framework of sterilizers shall be as follows:

- (a) *Frame*—stainless steel or hot-dip galvanized carbon steel.
- (b) *Adjustable brackets, feet or levelling bolts*—stainless steel.

2.8 EXTERNAL PANELS. For free-standing cabinet models, all external panels should be fabricated from satin finish stainless steel having a thickness not less than 0.9 mm.

NOTE: Where the purchaser requires material other than the above, he should specify the type of material required and its thickness, at the time of enquiry or order (see Appendix A).

TABLE 2.1
MATERIALS FOR CHAMBER, JACKET, DOOR RING AND DOOR

Combination No	Chamber	Jacket	Door ring	Door
1	Stainless steel	Stainless steel Carbon steel	Stainless steel Carbon steel	Stainless steel Nickel-clad or
2	Stainless steel-clad (on internal face) carbon steel	Carbon steel	Stainless steel Carbon steel	Stainless steel-clad (on internal face) carbon steel
3	Nickel-clad carbon steel	Carbon steel	Stainless steel Copper-nickel alloy Carbon steel	Carbon steel Copper-nickel alloy Gunmetal Aluminium
4	Carbon steel	Carbon steel	Carbon Steel	Carbon steel
5	Copper-nickel alloy	Copper-nickel alloy	Copper-nickel alloy Gunmetal	Stainless steel Copper-nickel alloy Gunmetal
6	Copper	Copper	Gunmetal	Gunmetal
7	Aluminium	Aluminium	Aluminium	Stainless steel Aluminium

TABLE 2.2
MATERIALS FOR CONNECTIONS WELDED TO THE CHAMBER

Chamber (See Table 2.1)	Connections
Stainless steel	Stainless steel of equivalent type to the material of the chamber
Stainless steel-clad carbon steel	Stainless steel of equivalent type to the cladding material of the chamber
Nickel-clad carbon steel	Nickel or copper-nickel alloy
Carbon steel	Carbon steel of equivalent type to the material of the chamber
Copper-nickel alloy	Copper-nickel alloy of equivalent type to the material of the chamber
Copper	Gunmetal
Aluminium	Aluminium