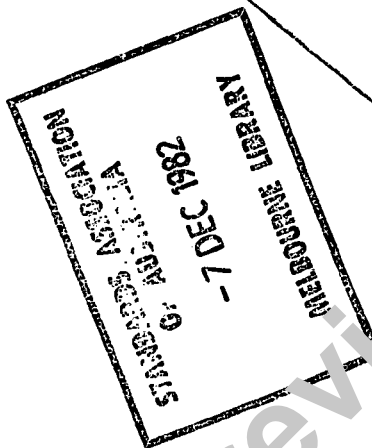


Australian Standard 3305—1983

APPROVAL AND TEST SPECIFICATION FOR PARTICULAR REQUIREMENTS FOR MOTOR-COMPRESSORS



**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
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- Australian Chamber of Commerce
- Australian Electrical and Electronic Manufacturers Association
- Confederation of Australian Industry
- Electrical Apparatus Approvals Authorities
- Electric Contractors Associations of Australia
- Electrical Testing Laboratories
- Electricity Supply Association of Australia
- Electronics Importers Association

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PREFACE

This standard was prepared by the Association's Committee on Electrical Approvals Standards.

It contains specific requirements for motor-compressors and is a supplementary specification to AS 3300, Approval and Test Specification for General Requirements for Household and Similar Electrical Appliances (which closely follows IEC 335-1).

The clauses of this standard supplement or modify the corresponding clauses in AS 3300. Where the reference in the text of this standard indicates an 'addition' or 'replacement' of the relevant requirements, tests or explanation notes to AS 3300, these changes are made to the relevant text which then becomes part of that standard. It will be observed that when no such change is necessary, the words 'this Clause of AS 3300 is applicable' are used.

This standard closely follows IEC 335-2-34, Particular Requirements for Motor Compressors; however, some of the requirements of that publication have been modified to take account of local conditions. Where this standard deviates technically from the IEC document by way of additional or different requirements, the deviation is indicated by a rule in the margin against the clause, or part thereof, affected.

The object of the standard is to specify the particular safety requirements for sealed (hermetic and semi-hermetic type) motor-compressors, in order to avoid testing the same compressor again in various types and models of refrigerating and airconditioning equipment. These requirements apply to sealed (hermetic and semi-hermetic type) motor-compressors and their associated starting and protection systems, tested separately under the most severe conditions which, within reasonable limits, could occur in the application for which they are used.

In particular, the construction details, load-rotor testing, overload short-circuit testing, etc. may be performed separately on the compressor, thereby eliminating the need for re-investigation and testing

when the compressor is used in the many different types of appliances.

Operational tests may also be conducted on the compressor separately in certain instances. The recommendations for this type of testing are also provided. However, the test recommendations of the existing standards relevant to the kind of application such as AS 3303, Particular Requirements of Refrigerators and Food Freezers, and AS 3179, Small Self-contained Refrigerated Air Conditioners, may need to be conducted on the final application and used as the final determination of acceptability.

Preparation of this standard was undertaken to progressively align Australian approval and test specifications with IEC standards for appliances.

This standard requires reference to the following approval and test specifications:

AS 3174	Domestic Electric Refrigerators and Freezers
AS 3179	Small Self-contained Refrigerated Air Conditioners
AS 3182	Refrigerated Food Commercial Cabinets
AS 3300	General Requirements for Household and Similar Electrical Appliances
AS 3303	Particular Requirements for Refrigerators and Food Freezers
and the following Australian standards:	
AS 1430	Household Refrigerators and Freezers
AS 2420	Fire Test Methods for Solid Insulating Materials and Non-metallic Enclosures Used in Electrical Equipment
AS C320	Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service

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CONTENTS

CLAUSE	<i>Page</i>	<i>Page</i>	
1 Scope	5	22 Construction	10
2 Definitions	5	23 Internal Wiring	10
3 General Requirements	5	24 Components	10
4 General Notes on Tests	5	25 Supply Connection and External Flexible Cables and Cords	10
5 Rating	6	26 Terminals for External Conductors	11
6 Classification	6	27 Provision for Earthing	11
7 Marking	6	28 Screws and Connections	11
8 Protection Against Electric Shock	6	29 Creepage Distances, Clearances and Distances Through Insulation	11
9 Starting of Motor-operated Appliances	6	30 Resistance to Heat, Fire and Tracking	11
10 Input and Current	6	31 Resistance to Rusting	11
11 Heating	6	32 Radiation, Toxicity and Similar Hazards	11
12 Operation Under Overload Conditions with Heating Elements	6		
13 Electrical Insulation and Leakage Current at Operating Temperature	6	APPENDICES	
14 Radio and Television Interference Suppression	6	A (Void)	14
15 Moisture Resistance	6	B Electronic Circuits	14
16 Insulation Resistance and Electric Strength	6	C (Void)	14
17 Overload Protection	7	D Alternative Requirements for Protected Motor Units	14
18 Endurance	7	E Measurement of Creepage Distances and Clearances	14
19 Abnormal Operation	7		
20 Stability and Mechanical Hazards	10	ANNEX. VARIATIONS BETWEEN THIS STANDARD AND IEC 335-2-34	15
21 Mechanical Strength	10		

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
APPROVAL AND TEST SPECIFICATION
FOR
PARTICULAR REQUIREMENTS FOR MOTOR-COMPRESSORS

1. SCOPE

This Clause of AS 3300 is applicable except as follows:

REPLACEMENT. Replace Clause 1.1 with the following:

1.1 SCOPE AND APPLICATION. This specification applies to sealed (hermetic and semi-hermetic type) motor-compressors intended for use in air-conditioning and refrigerating equipment for household and similar uses which complies with the standards applicable to such equipment.

It also applies to motor-compressors for use in factory-built assemblies for transferring heat in applications for refrigerating, airconditioning or heating purposes or a combination of such purposes.

These requirements apply to sealed motor-compressors tested separately under the most severe conditions which, within reasonable limits, could occur in normal use.

NOTES:

1. These requirements do not supersede the requirements of existing standards relevant to the kind of application such as AS 3303 or AS 3179, but if the compressor type used complies with these particular requirements the tests for motor-compressors specified in the standard referred to need not be made in the appliance or assembly.
2. Attention is drawn to the fact that this specification does not take into consideration the special conditions of use which may occur when the appliance incorporating a motor-compressor is operating in locations where special conditions, such as explosive atmosphere, prevail.

2. DEFINITIONS

This Clause of AS 3300 is applicable except as follows:

ADDITIONS. Add the following:

2.2.101 Sealed (hermetic and semi-hermetic type) motor-compressor denotes a mechanical compressor consisting of a compressor and a motor, both of which are enclosed in the same sealed housing with no external shaft seals, the motor operating in a refrigerant atmosphere. The enclosure may be permanently sealed by welding or brazing (hermetic compressor) or may be sealed by one or more gasketed joints (semi-hermetic compressor). Hereafter, the term 'motor-compressor' is used whether it be hermetic or semi-hermetic.

2.2.102 Multiple rated voltage motor (dual voltage-single connection) denotes a motor which is suitable for use at more than one rated voltage without requiring adjustment of the motor winding connections, e.g. 220/240 V.

2.2.103 Multiple rated voltage motor (dual voltage-multiple connections) denotes a motor which

is suitable for use at more than one rated voltage by adjusting the motor winding connections and connecting the motor to the appropriate electrical supply, e.g. 120/240 V.

2.2.104 Motor-compressor enclosure denotes a sealed housing which contains the compressor and motor and which is subjected to refrigerant pressures.

2.2.105 Application categories. For the purpose of this standard, the following classifications of application categories are made relative to evaporation temperature range:

- (a) **Low back pressure.** Evaporation temperature range: -35°C (at least, if necessary) to -15°C .

Examples: household refrigerators, food freezers, and the like.

- (b) **Medium back pressure.** Evaporation temperature range: -20°C to 0°C .

Examples: beverage coolers, some types of milk coolers and the like.

- (c) **High back pressure.** Evaporation temperature range: -5°C to $+15^{\circ}\text{C}$.

Examples: room air conditioners, dehumidifiers, some types of milk coolers, heat pumps, and the like.

3. GENERAL REQUIREMENTS

This Clause of AS 3300 is applicable except as follows:

REPLACEMENT.

3.101 D.C. COMPONENT FROM A.C. APPLIANCES. Replace paragraph 5 and Notes 1 and 2 with the following:

The permissible direct current in the equipment neutral shall not exceed 5 mA.

4. GENERAL NOTES ON TESTS

This Clause of AS 3300 is applicable except as follows:

REPLACEMENT.

4.2 SAMPLING. Replace the first paragraph with the following:

The tests are made on a single sample as delivered which shall withstand all the relevant tests except that for the tests of Clauses 19.3 and 21.101.4 additional special samples are required. For the test of Clause 19.3, this special sample shall be identical in all respects with the test sample, charged with oil and refrigerant and provided with the overload protection device and starting relay specified by the manufacturer, except that the rotor shall have been locked by the manufacturer. For the test of Clause 21.101.4, two samples as specified in that Clause are required.