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**ROTATING
ELECTRICAL MACHINES—
GENERAL REQUIREMENTS
Part 60—TESTS**



**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
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This Australian standard was prepared by Committee EL/9, Rotating Electrical Machinery. It was approved on behalf of the Council of the Standards Association of Australia on 4 November 1985 and published on 6 January 1986.

PREFACE

This edition of this standard was prepared by the Association's Committee on Rotating Electrical Machinery to supersede AS 1359, General Requirements for Rotating Electrical Machines, Part 60—1981, Tests.

This edition cross-refers to AS 1359.50, Vibration Limits, and incorporates in Clause 60.10 the latest terminology in connection with duty ratings. A list of recommended duplicate and routine check tests is included.

The main title of this standard has been rearranged slightly; this change is being progressively introduced to all standards in the AS 1359 series.

Review of Australian Standards. To keep abreast of progress in industry, Australian standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that they are in possession of the latest edition, and any amendments thereto.

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Suggestions for improvements to Australian standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian standard should be made without delay in order that the matter may be investigated and appropriate action taken.

First published	1974
Second edition	1981
Third edition	1986

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
ROTATING ELECTRICAL MACHINES—GENERAL REQUIREMENTS
PART 60—TESTS

60.1 SCOPE. This standard sets out the test requirements applicable to rotating electrical machines.

60.2 APPLICATION. This standard shall be read in conjunction with the appropriate standards referred to herein.

60.3 REFERENCED DOCUMENTS. A list with titles of the standards referred to in this standard is given in the Annex.

60.4 TEST ARRANGEMENTS. The tests described in this standard shall normally be made at the manufacturer's works.

When test certificates are required, this shall be specified with the enquiry.

If normal test arrangements are inapplicable, e.g. in the case of certain large or special machines, the tests to be made and the manner of their application are a matter for agreement between the purchaser and the manufacturer before the order is placed.

NOTE: The presence of the purchaser or his representative during tests carried out to demonstrate compliance with the terms of the order is a matter for special arrangement before the order is placed.

60.5 CLASSIFICATION OF TESTS. Tests shall be classified as follows:

- (a) *Performance tests (411-23-01)**—tests required to determine the characteristics of a machine and to show that the machine complies with its specification.
- (b) *Type tests (411-23-02)**—performance tests taken on one of the first machines of each type of design.
- (c) *Duplicate tests (411-23-03)**—tests applied to a machine of the same design and construction as a machine previously subjected to type-tests, with the object of demonstrating that the machine is in accordance with the original design.
- (d) *Routine check tests (411-23-04)**—tests applied to a machine to show that it is able to withstand the appropriate high-voltage tests, and is in correct working order both electrically and mechanically.

A recommended schedule for duplicate and routine check tests is given in Table 60.1.

60.6 TEST RESULTS. The results of performance, type and duplicate tests shall be held available by the manufacturer. The records of routine check tests need not be made available.

Unless otherwise specified and agreed before the order is placed, the manufacturer may submit certificates of type tests which have been made on a machine identical in all essential details with those purchased, in conjunction with duplicate or routine check tests.

When the results of such type tests are not available and when specified and agreed before the order is placed, performance tests shall be taken on the first machine of each design, and either duplicate or routine check tests shall be taken on all subsequent machines of the same design in the order.

When the results of type tests at the precise ratings are not available for a duplicate machine and when performance tests were not specified and agreed before the order was placed, performance tests taken on a machine of similar design and rating which, together with the tests taken on the actual machine, satisfy the manufacturer and the purchaser that the machine complies with the specification, shall be accepted as type tests for the machines.

60.7 OVERSPEED TESTS. Overspeed tests shall be carried out where the purchaser requests them at the time of the enquiry. In this case, the tests shall be carried out in accordance with AS 1359.41 at any convenient temperature. The duration of the tests shall be 2 min.

A machine shall be deemed to satisfy the requirements of these tests if—

- (a) no permanent abnormal deformation is apparent after the test;
- (b) no damage is sustained which would prevent the machine from operating normally; and
- (c) the windings withstand the specified high voltage test after the overspeed test.

60.8 COMMUTATION TESTS. Commutation tests shall be made to ensure compliance with AS 1359.41 over the speed range for which the machine is designed. The tests shall be made at the conclusion of any temperature-rise tests (see Clause 60.10).

60.9 SUDDEN THREE-PHASE SHORT-CIRCUIT TESTS FOR A.C. GENERATORS. Sudden three-phase short-circuit tests for a.c. generators in accordance with AS 1359.40 shall only be carried out where the purchaser requests them at the time of the enquiry. In this case, the test shall be carried out on a machine running on open circuit at normal speed with excitation at a constant value which will produce a generator terminal voltage not greater than the rated voltage. The voltage at which the test shall be carried out shall be the subject of agreement between the purchaser and the manufacturer at the time of the enquiry.

* The composite number in parentheses indicates that the term is defined in AS 1852(411).