

WITHDRAWN IS
AUGUST 1997
S BY
IS 1359.14-1997

AS 1359.50-1983
UDC 621.313-13

Australian Standard 1359, Part 50—1983

GENERAL REQUIREMENTS FOR ROTATING ELECTRICAL MACHINES Part 50—VIBRATION LIMITS

STANDARDS ASSOCIATION
OF AUSTRALIA
24 AUG 1983
MELBOURNE LIBRARY



**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.**

Incorporated by Royal Charter

This part of this Australian standard was prepared by Committee EL/9, Rotating Electrical Machinery, in conjunction with Committee ME/41, Vibration and Shock. It was approved on behalf of the Council of the Standards Association of Australia on 21 July 1983 and published on 5 September 1983.

The following interests are represented on Committees EL/9 and ME/41:

Association of Consulting Engineers Australia
Australian British Trade Association
Australian Electrical and Electronic Manufacturers' Association
Australian Gas Association
Australian Mining Industry Council
Australian Shipbuilders Association
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Construction Equipment Importers and Manufacturers of Australia
CSIRO, National Measurement Laboratory
Department of Defence
Department of Defence Support
Department of Industrial Relations
Department of Science and Technology
Electricity Supply Association of Australia
Federation of Automotive Products Manufacturers
Importing Interests
Institute of Quarrying
Institution of Engineers Australia
Institution of Mechanical Engineers Australia
Metropolitan Water Sewerage and Drainage Board, N.S.W.
Monash University
National Association of Testing Authorities Australia
New South Wales Institute of Technology
University of Melbourne
University of Newcastle
University of New South Wales
University of Queensland

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.

Full details of all SAA publications will be found in the Annual List of Australian Standards; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn standards.

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 1983

This standard was issued in draft form for comment as part of DR 82141.

ISBN 0 7262 3110 X

PREFACE

This standard was prepared by the Association's Committees on Rotating Electrical Machinery and on Vibration and Shock.

In the preparation of this standard, reference was made to the following standard:

IEC 34 Rotating Electrical Machines
 34-14 Mechanical Vibration of Certain Electrical Machines with
 Shaft Heights 56 mm and Higher—Measurement, Evaluation and
 Limits of the Vibration Severity.

The limits specified herein are identical with those in IEC 34-14. This Part of the standard has to be used in conjunction with AS 2625, Parts 1 and 2.

CONTENTS

	<i>Page</i>
FOREWORD	4
SPECIFICATION	
50.1 Scope	4
50.2 Application	4
50.3 Referenced Documents	4
50.4 Method of Measuring Vibration	4
50.5 Limits of Vibration Severity	4

©Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1983

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
**GENERAL REQUIREMENTS FOR ROTATING ELECTRICAL
MACHINES**

PART 50—VIBRATION LIMITS

FORWORD

Vibrations in rotating electrical machinery are caused for example by—

- (a) imbalance in the rotating masses;
- (b) electromagnetic effects;
- (c) the rolling element bearings; and
- (d) aerodynamic loads and other effects such as instability of the shaft in the bearings, asymmetric expansion.

In spite of the balancing that can be obtained with dynamic balancing techniques, residual imbalance generally proves to be the main cause of once-per-revolution vibrations found in rotating machines.

SPECIFICATION

50.1 SCOPE. This Part of the standard specifies limits of vibration severity for d.c. machines and three-phase a.c. machines with shaft heights of 56 mm and above, with rated powers up to 50 MW, nominal speeds from 10 r/s up to and including 60 r/s, and specifically set up and arranged for vibration measurement.

This Part of the standard also applies to vertical machines with shaft heights up to and including 400 mm that can be tested in a state of soft suspension.

NOTE: The shaft height of a machine without feet, or a machine with raised feet, or any vertical machine, is to be taken as the shaft height of a machine in the same basic frame, but of the horizontal shaft foot-mounting type.

This Part of the standard does not apply to machines mounted 'in situ', to three-phase commutator motors, single-phase machines, three-phase machines operated on single-phase systems, water-powered generators, permanent magnet generators, or to machines which cannot run uncoupled from their prime movers or driven loads.

50.2 APPLICATION. This Part of the standard shall be read in conjunction with AS 2625, Parts 1 and 2.

50.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

- AS 2625 Rotating and Reciprocating Machinery—Mechanical Vibration
 Part 1—Basis for Specifying Evaluation Standards
 Part 2—Test and Measurement Conditions for Rotating Electrical
 Machines

50.4 METHOD OF MEASURING VIBRATION. The measurement quantity (vibration severity), the measuring equipment, the method of mounting the machine, and the conditions of measurement shall be as specified in AS 2625, Part 2.

50.5 LIMITS OF VIBRATION SEVERITY. The limits of vibration severity for the various standard shaft heights and for the two mounting conditions are specified in Table 50.1.