

INTERNATIONAL
STANDARD

ISO
15242-1

First edition
2004-05-01

**Rolling bearings — Measuring methods
for vibration —**

**Part 1:
Fundamentals**

*Roulements — Méthodes de mesurage des vibrations —
Partie 1: Principes fondamentaux*



Reference number
ISO 15242-1:2004(E)

© ISO 2004

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	1
4 Fundamental concepts	3
4.1 Bearing vibration measurement	3
4.2 Characteristics of an axis of rotation.....	3
4.3 Bearing error motion	4
4.4 Bearing vibration.....	5
5 Measurement process	6
5.1 Basis of measurement.....	6
5.2 Speed of rotation.....	6
5.3 Orientation of bearing rotational axis	6
5.4 Bearing load	6
5.5 Transducers.....	6
6 Measurement and evaluation methods.....	7
6.1 Physical quantity measured.....	7
6.2 Frequency domain	7
6.3 Time domain	7
6.4 Transducer response and filter characteristics.....	8
6.5 Method of time-averaging	9
6.6 Testing sequence	10
7 Conditions for measurement	10
7.1 Bearing conditions for measurement	10
7.2 Conditions of the test environment	10
7.3 Conditions for the test device.....	11
7.4 Requirements for the operator	11
8 Calibration and reference evaluation of measuring system.....	11
8.1 General	11
8.2 Calibration of system components	11
8.3 System performance evaluation.....	12
Annex A (informative) Contact resonance considerations	13
Bibliography	14