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First edition
1998-10-15

Methods for the calibration of vibration and shock transducers —

Part 1: Basic concepts

*Méthodes pour l'étalonnage des transducteurs de vibrations et de chocs —
Partie 1: Concepts de base*



Reference number
ISO 16063-1:1998(E)

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Printed in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 16063-1 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, Subcommittee SC 3, *Use and calibration of vibration and shock measuring instruments*.

This first edition of ISO 16063-1 cancels and replaces ISO 5347-0:1987, of which it constitutes a minor revision. A new clause 6, new annex A, and an enlarged bibliography have been included.

ISO 16063 will consist of the following parts, under the general title *Methods for the calibration of vibration and shock transducers*:

- *Part 1: Basic concepts*
- *Part 2: Primary calibrations*
- *Part 3: Secondary calibrations*
- *Part 4: Environmental calibrations*

Parts 2 to 4 are under preparation and will consist of a revision of parts 1 to 23 of ISO 5347.

Annex A of this part of ISO 16063 is for information only.

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Introduction

The calibration of vibration and shock transducers has become increasingly important as the need has grown for accurate measurements of the shocks and vibrations to which man and a wide variety of equipment are subjected in service. Several methods have been used or proposed for these calibrations and some of them are described in this part of ISO 16063. Clause 5 describes methods which have proved to be reliable means for the primary calibration of vibration and shock transducers.

Methods of calibration for both vibration and shock transducers are included in this International Standard because it has proved to be impracticable to make a distinction between transducers used in measurements of vibrations and those used in measurements of shocks.

This International Standard is limited to the calibration of acceleration, velocity and displacement transducers. It does not deal with transducers used for measurements of force, pressure or strain, even though some of these may be calibrated using similar methods. Furthermore, transducers used to measure rotational vibratory motion are also excluded because, at present, they are few in number and the calibration hardware and methods are somewhat different from those for the rectilinear transducers covered by this International Standard.

This part of ISO 16063 contains definitions and describes basic primary calibration. In addition, it describes, in general terms, various methods for the calibration of vibration and shock transducers as well as methods for measuring characteristics other than sensitivity. In order to be able to carry out a calibration with known accuracy, detailed specifications for instruments and procedures have to be laid down. Information of this kind for each method of calibration will be specified in subsequent parts of ISO 16063 (i.e. revisions of parts 1 to 23 of the ISO 5347 series).

The transducer may be calibrated as a unit by itself; it may include a cable connection and/or a conditioning device. The calibration system shall always be properly described.

A bibliography is included and the references are referred to in the text by numbers in square brackets.