



**International
Standard**

ISO 21940-14

**Mechanical vibration — Rotor
balancing —**

**Part 14:
Procedures for assessing balance
errors**

Vibrations mécaniques — Équilibrage des rotors —

*Partie 14: Modes opératoires d'évaluation des erreurs
d'équilibrage*

**Second edition
2026-09**

Sample Document

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Published 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 2, *Measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles and structures*.

This second edition cancels and replaces the first edition (ISO 21940-14:2012), which has been technically revised. It also incorporates the Amendment ISO 21940-14:2012/Amd.1:2022.

The main changes are as follows:

- the extension of the term “error” to “deviations” of the rotor’s state of assembly on the balancing machine from the fully assembled rotor in service.

A list of all parts in the ISO 21940 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The balance quality of a rotor is assessed in accordance with the requirements of ISO 21940-11 [\[1\]](#) or ISO 21940-12 [\[2\]](#) by measurements taken on the rotor. These measurements can contain errors which originate from a number of sources. Where those errors are significant, they should be taken into account when defining the required balance quality of the rotor.

ISO 21940-11 [\[1\]](#) and ISO 21940-12 [\[2\]](#) do not consider balancing errors in detail. Therefore this document gives examples of typical errors that can occur and provides recommended procedures for their evaluation.

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Mechanical vibration — Rotor balancing —

Part 14: Procedures for assessing balance errors

1 Scope

This document specifies the requirements for

- identifying errors in the unbalance measuring process of a rotor including all factors similar to errors in their effect on the balancing precision,
- assessing the identified errors, and
- taking errors into account in preparation and realization of the balancing process and in the evaluation of the residual unbalance.

For the main typical errors this document lists the methods for their reduction in [Annex A](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21940-2, *Mechanical vibration — Rotor balancing — Part 2: Vocabulary*

ISO 21940-11:2016, *Mechanical vibration — Rotor balancing — Part 11: Procedures and tolerances for rotors with rigid behaviour*

ISO 21940-21, *Mechanical vibration — Rotor balancing — Part 21: Description and evaluation of balancing machines*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21940-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1 balancing error

known or unknown variable quantity by which the actual balance condition of a rotor differs from the intended balance condition