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# Mechanical vibration — Methodology for selecting appropriate machinery vibration standards

*Vibrations mécaniques — Méthodologie pour la sélection des normes appropriées relatives aux vibrations des machines*

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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 documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

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The committee responsible for this document is 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*.



 

# Mechanical vibration — Methodology for selecting appropriate machinery vibration standards



## 1 Scope

This Technical Report provides guidance for selecting appropriate vibration standards for specific machine types, and thus selecting the appropriate vibration measurement and evaluation method. Synopses are given of ISO 10816 (evaluation of machine vibration on non-rotating parts) and ISO 7919 (evaluation of machine vibration on rotating parts), together with further International Standards related to machinery.

This Technical Report provides an overview of the relevant International Standards, giving a summary of their scopes. It also provides a theoretical, analytical basis for establishing whether vibration measurements should be carried out on non-rotating parts, rotating shafts or both for those machines where no previous experience exists. It is not intended to supersede established manufacturers' or users' practical experience with specific machine types since there can be specific features associated with a particular machine which lead to a different selection of the most relevant measurement procedure.

The aim of this Technical Report is not to equip the reader with all the technical details provided in the International Standards necessary to carry out a measurement or evaluation task on a particular machine; rather it guides the reader to the appropriate International Standards. It is these International Standards that provide the necessary details; and then, with suitable training, the reader is in a position to carry out the measurement or evaluation task.

## 2 International Standards

NOTE 1 The International Standards referred to in this Technical Report are periodically reviewed. Care needs to be taken when using the International Standards presented to ensure that the latest edition (including any Amendments and Corrigenda) is used.

NOTE 2 Many of the International Standards discussed in this Technical Report together with additional International Standards are summarized by their application area in Table E.1.

NOTE 3 This Technical Report provides a snapshot of current relevant standards. It is inevitable, however, that as time passes new standards will be developed. Furthermore, there may be other standards available for specific machine types which have not been referred to. The absence of any such reference should not be interpreted as meaning that such standards are not valid.

### 2.1 Basic machinery vibration standards

ISO 7919-1, *Mechanical vibration of non-reciprocating machines — Measurements on rotating shafts and evaluation criteria — Part 1: General guidelines*

ISO 7919-2, *Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 2: Land-based steam turbines and generators in excess of 50 MW with normal operating speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min and 3 600 r/min*

ISO 7919-3, *Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 3: Coupled industrial machines*

ISO 7919-4, *Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 4: Gas turbine sets with fluid-film bearings*

ISO 7919-5, *Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 5: Machine sets in hydraulic power generating and pumping plants*