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2009-02-01

**AMENDMENT 1**  
2017-08

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**Mechanical vibration — Evaluation of  
machine vibration by measurements  
on non-rotating parts —**

Part 3:  
**Industrial machines with nominal  
power above 15 kW and nominal  
speeds between 120 r/min and  
15 000 r/min when measured in situ**

**AMENDMENT 1**

*Vibrations mécaniques — Évaluation des vibrations des machines par  
mesurages sur les parties non tournantes —*

*Partie 3: Machines industrielles de puissance nominale supérieure à  
15 kW et de vitesse nominale de fonctionnement entre 120 r/min et  
15 000 r/min, lorsqu'elles sont mesurées in situ*

*AMENDEMENT 1*



Reference number  
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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 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://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*.

A list of all parts in the ISO 10816 series can be found on the ISO website.

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# Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts —

Part 3:

## Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15 000 r/min when measured in situ

### AMENDMENT 1

#### Foreword

Replace the complete text of the Foreword by the following:

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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 10816-3:1998), which has been technically revised. The main change is the deletion of pumps from the scope, which are now dealt with in ISO 10816-7.

A list of all parts in the ISO 10816 series can be found on the ISO website.

*Introduction*

Replace the first sentence with the following:

ISO 20816-1 gives general guidelines for evaluating the vibration of various machine types when the vibration measurements are made on rotating and on non-rotating (and, where applicable, non-reciprocating) parts of complete machines.

*Second paragraph*

Replace references to “ISO 7919-1<sup>[1]</sup> and ISO 7919-3<sup>[2]</sup>” with “ISO 7919-3 and ISO 20816-1”.

*Clause 1, second paragraph*

Replace the paragraph by the following:

The machine sets covered by this part of ISO 10816 include:

- steam turbines and generators with outputs less than or equal to 40 MW;
- steam turbines and generators with outputs greater than 40 MW and speeds other than 1 500 r/min, 1 800 r/min, 3 000 r/min or 3 600 r/min (although generators seldom fall into this category);
- rotary compressors;
- industrial gas turbines with outputs less than or equal to 3 MW;
- electrical motors of any type;
- blowers or fans.

NOTE However, the vibration criteria presented in this part of ISO 10816 are generally only applicable to fans with power ratings greater than 300 kW or fans which are not flexibly supported. As and when circumstances permit, recommendations for other types of fans, including those with lightweight sheet metal construction, will be prepared. Until such time, classifications can be agreed between the manufacturer and the customer, using results of previous operational experience, see also ISO 14694.

*Third paragraph*

Replace the first, second and seventh items in the list with:

- steam turbines and/or generators with outputs greater than 40 MW and speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min or 3 600 r/min (see ISO 20816-2);
- gas turbine sets with outputs greater than 3 MW (see ISO 10816-4 and ISO 20816-2);
- reciprocating compressors (see ISO 10816-8);

*Clause 2*

Replace this clause with the following:

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 496, *Driving and driven machines — Shaft heights*

ISO 2954, *Mechanical vibration of rotating and reciprocating machinery — Requirements for instruments for measuring vibration severity*

ISO 20816-1, *Mechanical vibration — Measurement and evaluation of machine vibration — Part 1: General guidelines*

*3.1*

Replace the reference to “ISO 10816-1” with “ISO 20816-1”.

*3.2, second sentence*

Replace the reference to “ISO 10816-1” with “ISO 20816-1”.

*3.3, NOTE*

Replace the reference to “IEC 60034-14:2003<sup>[5]</sup>” with “IEC 60034-14”.

*5.1, first sentence*

Replace the reference to “ISO 10816-1” with “ISO 20816-1”.

*5.5*

Replace references to “ISO 7919-3<sup>[2]</sup>” with “ISO 7919-3”.

*5.6, first paragraph*

Replace the reference to “ISO 10816-1” with “ISO 20816-1”.

*Bibliography*

Replace the references with the following:

- [1] ISO 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*
- [2] ISO 5348, *Mechanical vibration and shock — Mechanical mounting of accelerometers*
- [3] ISO 7919-3, *Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 3: Coupled industrial machines*
- [4] ISO 10816-4, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 4: Gas turbine sets with fluid-film bearings*
- [5] ISO 10816-6, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 6: Reciprocating machines with power ratings above 100 kW*
- [6] ISO 10816-7, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 7: Rotodynamic pumps for industrial applications, including measurements on rotating shafts*
- [7] ISO 10816-8, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 8: Reciprocating compressor systems*
- [8] ISO 13373-1, *Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 1: General procedures*
- [9] ISO 13373-2, *Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 2: Processing, analysis and presentation of vibration data*
- [10] ISO 13373-3, *Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 3: Guidelines for vibration diagnosis*
- [11] ISO 14694, *Industrial fans — Specifications for balance quality and vibration levels*
- [12] ISO 20816-2, *Mechanical vibration — Measurement and evaluation of machine vibration — Part 2: Land-based gas turbines, steam turbines and generators in excess of 40 MW, with fluid-film bearings and rated speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min and 3 600 r/min*
- [13] ISO 20816-5, *Mechanical vibration — Measurement and evaluation of machine vibration — Part 5: Machine sets in hydraulic power generating and pump-storage plants*
- [14] ISO 21940-11, *Mechanical vibration — Rotor balancing — Part 11: Procedures and tolerances for rotors with rigid behaviour*
- [15] ISO 21940-12, *Mechanical vibration — Rotor balancing — Part 12: Procedures and tolerances for rotors with flexible behaviour*
- [16] ISO 21940-31, *Mechanical vibration — Rotor balancing — Part 31: Susceptibility and sensitivity of machines to unbalance*
- [17] IEC 60034-14, *Rotating electrical machines — Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher — Measurement, evaluation and limits of vibration severity*