DIN ISO 10816 Supplement 1

DIN

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This supplement provides information relating to DIN ISO 10816, but does not contain any additional specifications.

Mechanical vibration – Evaluation of machine vibration by measurements on non-rotating parts – Supplement 1: Methodology for selecting machinery vibration standards, including the shaft vibration (ISO/TR 19201:2013), English translation of DIN ISO 10816 Beiblatt 1:2013-12

Mechanische Schwingungen –
Bewertung der Schwingungen von Maschinen durch Messungen an nicht-rotierenden Teilen –
Beiblatt 1: Methodisches Vorgehen bei der Auswahl von Normen zu Maschinenschwingungen einschließlich der Wellenschwingungen (ISO/TR 19201:2013),
Englische Übersetzung von DIN ISO 10816 Beiblatt 1:2013-12

Vibrations mécaniques –
Évaluation des vibrations des machines par mesurages sur les parties non tournantes –
Supplément 1: Méthodologie pour la sélection des normes relatives aux vibrations des machines, y compris les vibrations des arbres tournants (ISO/TR 19201:2013),
Traduction anglaise de DIN ISO 10816 Beiblatt 1:2013-12

Document comprises 32 pages

Translation by DIN-Sprachendienst.
In case of doubt, the German-language original shall be considered authoritative.

A comma is used as the decimal marker.

Contents

Foreword

This document (DIN ISO 10816 Supplement 1) has been prepared by the *Normenausschuss Akustik, Lärmminderung und Schwingungstechnik im DIN und VDI* (Acoustics, Noise Control and Vibration Engineering Standards Committee in DIN and VDI), Working Committee NA 001-03-06-02 UA (NALS/VDI C 6 UA 2) *Messung und Beurteilung von Maschinenschwingungen* and contains Technical Report ISO/TR 19201:2013.

The committee responsible for this document is 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” (Secretariat: DIN, Germany).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. DIN [and/or DKE] shall not be held responsible for identifying any or all such patent rights.

To see if there is a German translation of any of the International Standards listed in the present standard (in Clause 2 and the Bibliography), users can do a keyword search using the ISO standard number either at www.din.de or at Beuth Verlag’s webshop, www.beuth.de.

Particular attention should be given to VDI 3836, which supplements DIN ISO 10816-3, and to VDI 3838, which supplements DIN ISO 10816-6; these are listed in the Bibliography.

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*

ISO 10816-1, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 1: General guidelines*

ISO 10816-2, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — 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 10816-3, *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*

ISO 10816-4, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 4: Gas turbine sets with fluid-film bearings*

ISO 10816-5, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 5: Machine sets in hydraulic power generating and pumping plants*

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*

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*

ISO 10816-8, *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 8: Reciprocating compressor systems*

2.2 Related machinery vibration standards

ISO 3046-5, *Reciprocating internal combustion engines — Performance — Part 5: Torsional vibrations*

ISO 8579-2, *Acceptance code for gears — Part 2: Determination of mechanical vibrations of gear units during acceptance testing*

ISO 13373-1, *Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 1: General procedures*

ISO 13373-2, *Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 2: Processing, analysis and presentation of vibration data*

ISO 13373-3,[1)]*Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 3: Guidelines for vibration diagnosis*

ISO 14694, *Industrial fans — Specifications for balance quality and vibration levels*

ISO 14695, *Industrial fans — Method of measurement of fan vibration*

2.3 Additional machinery vibration standards

ISO 1925, *Mechanical vibration — Balancing — Vocabulary*[2)]

ISO 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*

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

ISO 5348, *Mechanical vibration and shock — Mechanical mounting of accelerometers*

ISO 10817-1, *Rotating shaft vibration measuring systems — Part 1: Relative and absolute sensing of radial vibration*

1) Planned.

2) To become ISO 21940-2 when revised.