

DIN ISO 20816-5



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DIN ISO 7919-5:2005-10

**Mechanical vibration –
Measurement and evaluation of machine vibration –
Part 5: Machine sets in hydraulic power generating and pump-storage
plants (ISO 20816-5:2018),
English translation of DIN ISO 20816-5:2018-12**

Mechanische Schwingungen –
Messung und Bewertung der Schwingungen von Maschinen –
Teil 5: Maschinensätze in Wasserkraft- und Pumpspeichieranlagen (ISO 20816-5:2018),
Englische Übersetzung von DIN ISO 20816-5:2018-12

Vibrations mécaniques –
Mesurage et évaluation des vibrations des machines –
Partie 5: Groupes de machines équipant des centrales hydroélectriques et des stations de
pompage et de stockage (ISO 20816-5:2018),
Traduction anglaise de DIN ISO 20816-5:2018-12

Document comprises 59 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.

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National foreword

This standard (ISO 20816-5:2018) has been 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” (Secretariat: DIN, Germany) in collaboration with Technical Committee IEC/TC 4 “Hydraulic turbines”.

The responsible German body involved in its preparation was *DIN/VDI-Normenausschuss Akustik, Lärminderung und Schwingungstechnik* (DIN/VDI Standards Committee Acoustics, Noise Control and Vibration Engineering), Working Committee NA 001-03-03 AA (NALS/VDI C 3) “Measurement and evaluation of vibration of machines”.

The DIN documents corresponding to the international documents referred to in this document are as follows:

ISO 2954	DIN ISO 2954
ISO 5348	DIN ISO 5348
ISO 7919-3	DIN ISO 7919-3
ISO 10816-3	DIN ISO 10816-3
ISO 10816-7	DIN ISO 10816-7
ISO 10817-1	DIN ISO 10817-1
ISO 20816-1	DIN ISO 20816-1
ISO 21940-11	DIN ISO 21940-11
IEC 60034-14	DIN EN 60034-14 (VDE 0530-14)

The German Standards are given in National Annex NA.

ISO 20816 consists of the following parts, under the general title *Mechanical vibration — Measurement and evaluation of machine vibration*:

- *Part 1: General guidelines* ^{1*)}
- *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* ^{2*)}
- *Part 4: Gas turbines in excess of 3 MW, with fluid-film bearings* ^{3*)}
- *Part 5: Machine sets in hydraulic power generating and pump-storage plants* ^{4*)}
- *Part 8: Reciprocating compressor systems* ^{5*)}

1*) ISO 7919-1:1996, ISO 10816-1:1995 and ISO 10816-1:1995/Amd.1:2009 have been revised and combined.

2*) ISO 7919-2:2009 and ISO 10816-2:2009 have been revised and combined.

3*) ISO 7919-4:2009 and ISO 10816-4:2009 have been revised and combined.

4*) ISO 7919-5:2005 and ISO 10816-5:2000 have been revised and combined.

5*) ISO 10816-8:2014 and ISO 10816-8:2014/DAM1:2017 have been combined.

Amendments

This standard differs from DIN ISO 7919-5:2005-10 as follows:

- a) different types of machines and shaft orientation have been identified;
- b) following a statistical evaluation of current measured values, vibration values have been revised;
- c) shaft vibrations as well as bearing housing vibrations have been considered together with other machine parameters;
- d) normative references have been updated.

Previous editions

DIN ISO 7919-5: 2005-10

National Annex NA (informative)

Bibliography

DIN EN 60034-14 (VDE 0530-14), *Rotating electrical machines — Part 14: Vibration of certain machines with shaft heights 56 mm and higher — Measurement, evaluation and limits of vibration severity*

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

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

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

DIN 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*

DIN 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*

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

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

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

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

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

DIN 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*

DIN ISO 20816-4, *Mechanical vibration — Measurement and evaluation of machine vibration — Part 4: Gas turbines in excess of 3 MW, with fluid-film bearings*

DIN ISO 20816-8, *Mechanical vibration — Measurement and evaluation of machine vibration — Part 8: Reciprocating compressor systems*

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

DIN ISO 21940-13, *Mechanical vibration — Rotor balancing — Part 13: Criteria and safeguards for the in-situ balancing of medium and large rotors*

DIN ISO 21940-14, *Mechanical vibration — Rotor balancing — Part 14: Procedures for assessing balance errors*