BS ISO 7919-3:2009+A1:2017

BSI Standards Publication

# Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts

Part 3: Coupled industrial machines

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# National foreword

This British Standard is the UK implementation of ISO 7919-3:2009+A1:2017. It supersedes BS ISO 7919-3:2009, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by A1 A1.

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This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.


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BS ISO 7919-3:2009+A1:2017

INTERNATIONAL STANDARD

**ISO 7919-3**

Second edition
2009-02-01

# Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts —

## Part 3: Coupled industrial machines

*Vibrations mécaniques — Évaluation des vibrations des machines par mesurages sur les arbres tournants —*

*Partie 3: Machines industrielles couplées*

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# Foreword

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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 7919-3:1996 ), of which it constitutes a minor revision.

A list of all parts in the ISO 7919 series can be found on the ISO website.〚/A1〛

# Introduction

This part of ISO 7919 specifies guidelines for measuring transverse shaft vibration on coupled industrial machines. Evaluation criteria, based on previous experience, are given for use as guidelines for assessing the vibratory conditions of such machines.

A general description of the principles that are generally applicable for the measurement and evaluation of shaft vibration of non-reciprocating machines is outlined in [A1] ISO 20816-1 [A1] .

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**INTERNATIONAL STANDARD** **ISO 7919-3:2009(E)**

# Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts —

# Part 3: Coupled industrial machines

## 1 Scope

This part of ISO 7919 gives guidelines for applying evaluation criteria of shaft vibration under normal operating conditions, measured at or close to the bearings of coupled industrial machines. These guidelines are presented in terms of both steady running vibration and any amplitude changes which can occur in these steady values. The numerical values specified are not intended to serve as the only basis for vibration evaluation since, in general, the vibratory condition of a machine is assessed by consideration of both the shaft vibration and the associated structural vibration.

〈A1〉 This part of ISO 7919 applies to coupled industrial machines with fluid-film bearings, having maximum continuous rated speeds in the range 1 000 r/min to 30 000 r/min and not being limited by size and power (with certain restrictions), comprising

— 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;

— turbofans;

— electric drives and associated gears, where relevant;

— rotodynamic pumps (turbo pumps).

The information relating to pumps provided in this part of ISO 7919 complements that given in ISO 10816-7 . In particular, the conditions for *in-situ* operation, performing acceptance tests and the influence of bearing clearance given in ISO 10816-7 shall be taken into account when evaluating the shaft vibration of pumps.

The following are excluded from this part of ISO 7919:

— 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 7919-4 and ISO 20816-2);

— machine sets in hydraulic power generating and pump-storage plants (see ISO 20816-5);

— rotodynamic pumps including integrated electric motors, i.e. where the impeller is mounted directly on the motor shaft or is rigidly attached to it (see ISO 10816-7 );

— submerged motor-pumps;

— reciprocating pumps;

— rotary positive displacement compressors (e.g. screw compressors);