

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**

ICS 27.040; 17.160

National foreword

This British Standard reproduces verbatim ISO 10816-2:2001 and implements it as the UK national standard. It supersedes BS 7854-2:1996 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GME/21, Mechanical vibration and shock, to subcommittee GME/21/5, Vibration of machines, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

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

*Partie 2: Turbines à vapeur et alternateurs installés sur fondation radier,
excédant 50 MW avec des vitesses normales de fonctionnement de
1 500 r/min, 1 800 r/min, 3 000 r/min et 3 600 r/min*



Reference number
ISO 10816-2:2001(E)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 10816 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 10816-2 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, 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 10816-2:1996), which has been technically revised. Criteria for transient operating conditions, such as run up and run down, have been included.

ISO 10816 consists of the following parts, under the general title *Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts*:

- *Part 1: General guidelines*
- *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*
- *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*
- *Part 4: Gas turbine driven sets excluding aircraft derivatives*
- *Part 5: Machine sets in hydraulic power generating and pumping plants*
- *Part 6: Reciprocating machines with power ratings above 100 kW*

Annex A forms a normative part of this part of ISO 10816. Annex B is for information only.

Introduction

ISO 10816-1 is the basic document which describes the general requirements for measurement and evaluation of the vibration of various machine types when the vibration measurements are made on non-rotating parts. This part of ISO 10816 applies to steam turbines and generators.

Evaluation criteria, based on previous experience, are presented which may be used as guidelines for assessing the vibratory condition of such machines. It must be recognized that these criteria do not form the only basis for judging the severity of vibration. For steam turbines and generators, it is common practice also to judge the vibration based on measurements taken on rotating shafts. Requirements and evaluation criteria for measurements on rotating shafts are addressed in separate standards, ISO 7919-1 and ISO 7919-2.

The evaluation procedures presented in this part of ISO 10816 are based on broad-band measurements. However, it is important to note that because of advances in technology, the use of narrow-band measurements or spectral analysis has become increasingly widespread, particularly for the purposes of vibration evaluation, condition monitoring and diagnostics. The specification of criteria for such measurements is beyond the present scope of this part of ISO 10816. They will be dealt with in ISO 13373-1 for vibration condition monitoring of machines. Further parts of this series are currently under development.