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## Industrial fans — Method of measurement of fan vibration

*Ventilateurs industriels — Méthode de mesure des vibrations des ventilateurs*



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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14695 was prepared by Technical Committee ISO/TC 117, *Industrial fans*.

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## Introduction

ISO 14695 is a part of a series of standards covering important aspects of fans which affect their design, manufacture and use. This series includes ISO 5801, ISO 5802, ISO 12499, ISO 13347, ISO 13349, ISO 13350, ISO 13351 and ISO 14694.

Vibration is recognized as an important parameter in the description of the mechanical performance of fans. It gives an indication of how well the fan has been designed and constructed and can forewarn of possible operation problems. The problems may be associated with inadequacies in support structures and machine deterioration, etc.

Vibration measurements may be required for a variety of reasons of which the following are the most important:

- a) design/development evaluations;
- b) *in situ* testing;
- c) as information for a condition-monitoring or machinery health programme (ISO 14694 and Annex C gives recommended measuring positions for machinery health measurement);
- d) to inform the designer of associated supporting structures, foundations, ducting systems, etc., of the residual vibration which will be transmitted by the fan into the associated structure;
- e) as a quality assessment at the final inspection stage;
- f) to be sure of acceptability of specific dynamic loading.

All the information which can be obtained from tests conducted in accordance with this International Standard (see Clause 10) is neither necessary nor appropriate for quality-grading purposes. Reference should be made to ISO 14694 for this purpose. Vibration as a consequence of unbalance should be measured at the fan bearings and, in this connection, the recommendations given in ISO 1940-1 should be followed.

Whilst an open inlet/open outlet test may be useful as a quality guide, this International Standard recognizes that the vibration of a fan will be dependent upon the specified aerodynamic duty, which determines the rotational speed and position on the fan characteristic curve.

Although alternative standards exist which deal with the vibration of machines generally (e.g. ISO 10816), they presently have limitations because of their universal nature when considering a specific family of machines such as fans.

This International Standard describes the methods of measurement which will give consistent results and which may be used as a basis for comparison between products. The amount of information which needs to be presented and the preferred units are given in ISO 14694. Such information is dependent on the purpose for which the test has been conducted, the type of fan, its application and its method of mounting in service.