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**Industrial fans - Method of measurement of fan vibration
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO 14695:2003 "Industrial ventilators - Methods of measurement of vibration".

The following minimal editorial changes have been made to this document.

--- Incorporated the technical corrigendum of ISO 14695:2003/Amd1.2009. The outer margins of the clauses involved are marked with Vertical double lines (||) are marked.

--- Added the unit symbol "Hz" to "maximum frequency" in Table B.1.

Introduction

This document is part of a series of standards covering important aspects affecting the design, manufacture and use of ventilators.

ISO 5801, ISO 5802, ISO 12499, ISO 13347, ISO 13349, ISO 13350, ISO 13351 and ISO 14694 together A fundamental international standard system supporting industrial ventilators.

Vibration is a widely recognized important parameter for describing the mechanical performance of ventilators. It can be used as an indicator of the structural design and manufacturing quality of ventilators.

The indicator can also provide early warning of possible operational faults, which may be related to insufficient support structures and deterioration of the machine's condition.

There are many reasons for performing vibration measurements, the following are the most important reasons and purposes.

- a) Evaluation of design and development results;
- b) field testing;
- c) Information for condition monitoring or machine health management programmes (ISO 14694 and Annex C of this document give information for machine health management programmes).

Recommended measurement locations for status measurements);

- d) Provide designers of supporting structures, foundations, piping systems, etc. with information on residual vibrations transmitted from fans to related structures.

information;

- e) Product quality evaluation as the final inspection stage;
- f) Determine whether specific dynamic loads are acceptable.

For the purpose of quality rating, not all data and information obtained from tests in accordance with this document (see Chapter 10) must be used, and it is not appropriate to do so. It is recommended to refer to ISO 14694 for the quality classification of products; the vibration caused by the unbalance should be on the fan shaft.

The bearing position should be measured, and the relevant recommendations of ISO 1940-1 should be referred to.

When vibration is measured using the open inlet/open outlet method as a quality guide, this document recognizes that the vibration performance of the fan is not consistent with the specific gas flow.

The aerodynamic operating point determines the speed and the position of the fan characteristic curve.

Although other vibration standards exist for general machinery (e.g. ISO 10816), they are not suitable for special types of machinery such as ventilators.

When it comes to machine-like systems, they have limitations due to their generalized nature.

The method described in this document can give consistent results, and the measurement results can be used as a basis for comparison between different products; the data to be given the quantity and preferred units of information are given in ISO 14694 and depend on the purpose of the test, the type of ventilator, the type of application and the time of use.

Installation method.

Industrial ventilators - Vibration measurement methods for ventilators

1 Scope

This document describes the method for measuring the vibration characteristics of all types of industrial ventilators, applicable to ventilation fans with an installed power of less than 300 kW.

For fans with a power greater than 300kW, a fan with a power greater than 300kW may be used.

The method described in ISO 10816-1 and the applicable limits given in ISO 10816-3 are given in this document only.

Criteria for interpretation (see ISO 14694).

This document specifies that vibration may be measured using root mean square (rms) velocity, acceleration or displacement, or frequency within a specified frequency range.

The test method includes two installation methods. elastic rope suspension or elastic base installation.

Vibration force measurements at the mounting location can be helpful in analysing the effects of vibration on the supporting structure, but such measurements are outside the scope of this document.

The appendixes given are informative. Appendix B gives auxiliary measurement methods. Although they are not recommended for precise measurement, they can be used to evaluate Balancing of series-produced ventilators or for comparative on-site measurements.