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Fans — Determination of fan sound power levels under standardized laboratory conditions —

Part 1:
General overview

Ventilateurs — Détermination des niveaux de puissance acoustique des ventilateurs dans des conditions de laboratoire normalisées —

Partie 1: Présentation générale

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 117, *Fans*.

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This second edition cancels and replaces the first edition (ISO 13347-1:2004), which has been technically revised. It also incorporates the Technical Corrigendum ISO 13347-1:2004/Cor 1:2006 and the Amendment ISO 13347-1:2004/Amd 1:2010.

The main changes are as follows:

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— inclusion of acoustic methods for installation category E fans;

— symbols harmonized with those used in ISO 5801 and other ISO standards as listed in normative references [2];

— editorial revisions.

A list of all parts in the ISO 13347 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document deals with the determination of the fan sound power level appropriate to a particular application. In describing the test and rating procedures, numerous references are made to ISO 5801 as well as to other relevant ISO standards. This general overview should be read in conjunction with the appropriate part of the ISO 13347 series that specifies, in detail, methods for determining the sound power propagated from a fan in specified installation conditions as a function of frequency.

This document primarily deals with the determination of sound power levels of fans used in five installation categories (see Clause 4) for ducted and non-ducted applications, including jet fans.

The test procedures described in this document relate to laboratory conditions. The measurement of performance under site conditions is not included. Acoustic system effects can be considerable where the airflow into and out of the fan is not free from swirl, nor fully developed.

This document describes methods for determining sound power levels of fans in one-third octave bandwidths and one octave bandwidths.

Data obtained in accordance with this document can be used for the following purposes amongst others:

a) comparison of fans which are similar in size and type;

b) comparison of fans which are different in size, type, design, speed, etc;

c) determining whether a fan is suitable for a specified upper limit of sound emission;

d) scaling of fan noise from one size and speed to another size and speed of the same type of fan;

e) prediction of sound pressure level in application of the fan;

f) engineering work to assist in developing machinery and equipment with lower sound emissions.

This document along with the other parts of the ISO 13347 series specifies a method, based on the ISO 3740 series and ISO 9614-1 and ISO 9614-2, for acoustic testing of jet fans (and partition fans) from the method currently described in ISO 13350.

NOTE The bibliography contains further references for those wishing to explore this subject in greater detail (see References [1] to [21]).

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