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## **Industrial fans — Determination of fan sound power levels under standardized laboratory conditions —**

### **Part 2: Reverberant room method**

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

*Partie 2: Méthode de la salle réverbérante*



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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 13347-2 was prepared by Technical Committee ISO/TC 117, *Industrial fans*.

ISO 13347 consists of the following parts, under the general title *Industrial fans — Determination of fan sound power levels under standardized laboratory conditions*:

- *Part 1: General overview*
- *Part 2: Reverberant room method*
- *Part 3: Enveloping surface methods*
- *Part 4: Sound intensity method*

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## Introduction

The need for this new International Standard, ISO 13347, has been evident for some time. Whilst a number of national standards exist for the measurement of fan noise, none has received universal acceptance nor may comparisons be readily made.

Forming part of the ISO/TC 117 series of fan standards, this part of ISO 13347 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 reverberant room method should be read in conjunction with ISO 13447-1 and each parts of ISO 13347 which details other methods for determining the sound power radiated by a fan in specified installation conditions as a function of frequency.

This part of ISO 13347 primarily deals with the determination of sound power levels of industrial fans used for ducted applications.

The test procedures described in this part of ISO 13347 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 the velocity profile there fully developed.

This part of ISO 13347 describes methods for determining sound power levels of fans in one-third octave bandwidths.

Data obtained in accordance with this part of ISO 13347 may 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 and type;
- c) determining whether a fan complies with a specified upper limit of sound emission;
- d) scaling of fan noise from one size and speed to another size and speed;
- e) prediction of sound pressure level in an installation of which the fan forms a part;
- f) engineering work to assist in developing quiet machinery and equipment.