



SLOVENSKI STANDARD
SIST EN ISO 13350:2009
01-maj-2009

Industrijski ventilatorji - Mehanska varnost odprtih ventilatorjev (ISO 13350:1999)

Industrial fans - Performance testing of jet fans (ISO 13350:1999)

Einführendes Element - Haupt-Element - Ergänzendes Element (ISO 13350:1999)

Ventilateurs industriels - Essai de performance des ventilateurs accélérateurs (ISO 13350:1999)

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Ta slovenski standard je istoveten z: EN ISO 13350:2008

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ICS:

23.120 Ventilators. Fans. Air-conditioners

SIST EN ISO 13350:2009

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 13350

October 2008

ICS 23.120

English Version

Industrial fans - Performance testing of jet fans (ISO 13350:1999)

Ventilateurs industriels - Essai de performance des ventilateurs accélérateurs (ISO 13350:1999)

This European Standard was approved by CEN on 2 October 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

The text of ISO 13350:1999 has been prepared by Technical Committee ISO/TC 117 “Industrial fans” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13350:2008 by Technical Committee CEN/TC 156 “Ventilation for buildings” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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INTERNATIONAL STANDARD

ISO
13350

First edition
1999-10-01

Industrial fans — Performance testing of jet fans

Ventilateurs industriels — Essai de performance des ventilateurs accélérateurs

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ISO 13350:1999(E)

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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.

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.

International Standard ISO 13350 was prepared by Technical Committee ISO/TC 117, *Industrial fans*.

Annexes A, B, C and D of this International Standard are for information only.

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Introduction

The need for this new standard has been evident for some time. The use of the so-called jet fan to assist in controlling the quality of air in vehicle and train tunnels has become increasingly popular. The longitudinal method of ventilation can show advantages in initial cost and running cost compared to alternative systems, and smoke control in emergency conditions can be readily provided. At present, there is no published national or international standard for the performance testing of jet fans.

This International Standard, which forms part of the ISO/TC 117 series of fan standards, deals with the determination of those performance criteria essential to the correct application of jet fans. In describing the test and rating procedures, numerous references are made to ISO 5801 as well as to other relevant International Standards.

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Industrial fans — Performance testing of jet fans

1 Scope

This International Standard deals with the determination of those technical characteristics needed to describe all aspects of the performance of jet fans as defined in ISO 13349. It does not cover those fans designed for ducted applications, nor those designed solely for air circulation, e.g. ceiling fans and table fans.

The test procedures described in this International Standard relate to laboratory conditions. The measurement of performance under on-site conditions is not included.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Member of IEC and ISO maintain registers for currently valid International Standards.

ISO 1940-1:1986, *Mechanical vibration — Balance quality requirements of rigid rotors — Part 1: Determination of permissible residual unbalance.*

[SIST EN ISO 13350:2009](https://standards.iteh.ai/catalog/standards/sist/a7b9913c-eac8-40ce-9521-877777777777)

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ISO 5801:1997, *Industrial fans — Performance testing using standardized airways.*

ISO 13347:—¹⁾, *Industrial fans — Determination of fan sound power level under standardized laboratory conditions.*

ISO 13349:—¹⁾, *Industrial fans — Vocabulary and definitions of categories.*

ISO 14695:—¹⁾, *Industrial fans — Vibration measurement method.*

IEC 60034-2:1972, *Rotating electrical machines — Part 2: Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles).*

IEC 60034-14:1996, *Rotating electrical machines — Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher — Measurement, evaluation and limits of the vibration severity.*

¹⁾ To be published.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 13349, ISO 5801 and the following apply.

3.1 effective fan dynamic pressure

p_d
conventional quantity representative of the dynamic component of the fan output, calculated, in the particular case of a jet fan, from the effective fan outlet velocity and the inlet density

NOTE The effective fan dynamic pressure will not be the same as the average of the dynamic pressures across the section because it excludes from consideration that part of the dynamic energy flux which is due only to departures from uniform axial velocity distribution.

3.2 effective fan outlet area

A_{eff}
in the particular case of a jet fan, outlet area with deductions for motors, fairings or other obstructions

NOTE 1 If the silencer centrebody reaches the outlet plane of the fan, then the effective fan outlet area is defined as the annulus area at the fan outlet plane as shown in figure 1a).

NOTE 2 If the fan has a silencer without centrebody [see figure 1 b)], the effective fan outlet area will be close to the cross-sectional area inside the silencer in order to clear any exit bellmouth form.

NOTE 3 If the centrebody (motor or silencer core) does not extend to the outlet plane, the effective fan outlet area will approach the annulus area between the casing and the motor, but with some increase, as defined in figure 1c), for the distance between the centrebody and the outlet. Where the motor is on the upstream side, figure 1c) is applied to the impeller hub rather than the motor, as illustrated.

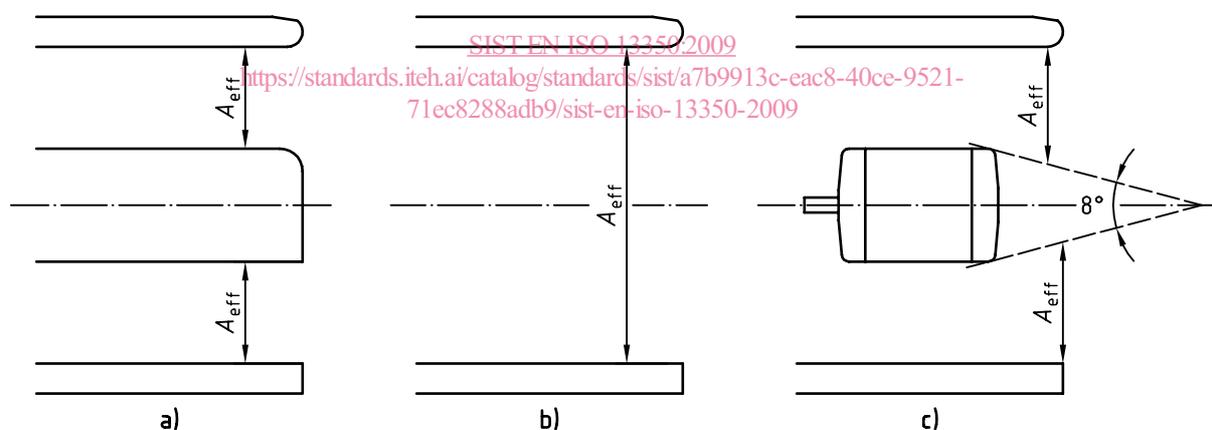


Figure 1 — Effective fan outlet area

3.3 effective fan outlet velocity

v_{eff}
calculated from the thrust, the inlet density and the effective fan outlet area as detailed in 11.2

3.4 fan outlet velocity

in the particular case of a jet fan, inlet volume flow divided by effective fan outlet area, A_{eff}

3.5 fan air power

conventional power output; in the particular case of a jet fan, product of inlet volume flow and effective fan dynamic pressure