

SVENSK STANDARD

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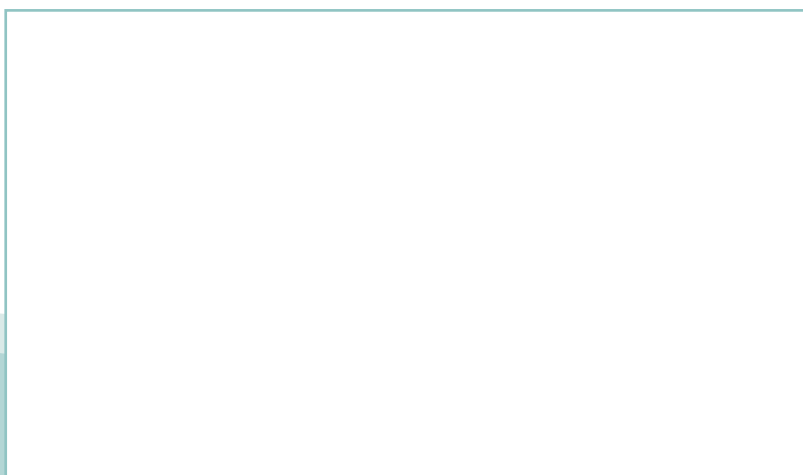
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Luftbehandlingsteknik – Fläktar – Terminologi och klassificering (ISO 13349:2010)

Fans – Vocabulary and definitions of categories (ISO 13349:2010)



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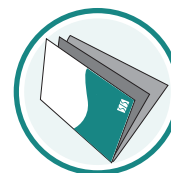
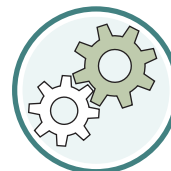
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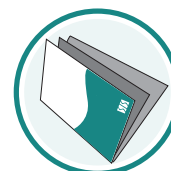
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Europastandarden EN ISO 13349:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 13349:2010.

Denna standard ersätter SS-EN ISO 13349:2008, utgåva 1 och SS-ISO 13349, utgåva 1.

The European Standard EN ISO 13349:2010 has the status of a Swedish Standard. This document contains the official English version of EN ISO 13349:2010.

This standard supersedes the Swedish Standard SS-EN ISO 13349:2008, edition 1 and SS-ISO 13349, edition 1.

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Denna standard är framtagen av kommittén för Luftbehandlingsteknik, SIS/TK 170.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 13349

July 2010

ICS 01.040.23; 23.120

Supersedes EN ISO 13349:2008

English Version

Fans - Vocabulary and definitions of categories (ISO 13349:2010)

Ventilateurs - Vocabulaire et définitions des catégories
(ISO 13349:2010)

This European Standard was approved by CEN on 9 June 2010.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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 United Kingdom.



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Foreword

This document (EN ISO 13349:2010) has been prepared by Technical Committee ISO/TC 117 "Fans" in collaboration with 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 January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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.

This document supersedes EN ISO 13349:2008.

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, Croatia, 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.

Endorsement notice

The text of ISO 13349:2010 has been approved by CEN as a EN ISO 13349:2010 without any modification.

Introduction

This International Standard reflects the importance of a standardized approach to the terminology of fans.

The need for an International Standard has been evident for some considerable time. To take just one example, the coding of driving arrangements differs from manufacturer to manufacturer. What one currently calls arrangement no. 1 can be known by another as arrangement no. 3. The confusion for the customer is only too apparent. For similar reasons, it is essential to use standardized nomenclature to identify particular parts of a fan.

Wherever possible, in the interests of international comprehension, this International Standard is in agreement with similar documents produced by Eurovent, AMCA, VDMA (Germany), AFNOR (France) and UNI (Italy). They have, however, been built on where the need for amplification was apparent.

Use of this International Standard will lead to greater understanding among all parts of the air-moving industry. This International Standard is intended for use by manufacturers, consultants and contractors.

Fans — Vocabulary and definitions of categories

1 Scope

This International Standard defines terms and categories in the field of fans used for all purposes.

It is not applicable to electrical safety.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements*

ISO 5801:2007, *Industrial fans — Performance testing using standardized airways*

ISO 5802:2001, *Industrial fans — Performance testing in situ*

ISO 13351, *Fans — Dimensions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5167-1 and ISO 5801 and the following apply

3.1 Fans

3.1.1

fan

rotary-bladed machine that receives mechanical energy and utilizes it by means of one or more impellers fitted with blades to maintain a continuous flow of air or other gas passing through it and whose work per unit mass does not normally exceed 25 kJ/kg

NOTE 1 The term "fan" is taken to mean the fan as supplied, without any addition to the inlet or outlet, except where such addition is specified.

NOTE 2 Fans are defined according to their installation category, function, fluid path and operating conditions.

NOTE 3 If the work per unit mass exceeds a value of 25 kJ/kg, the machine is termed a turbocompressor. This means that, for a mean stagnation density through the fan of $1,2 \text{ kg/m}^3$, the fan pressure does not exceed $1,2 \times 25 \text{ kJ/kg}$, i.e. 30 kPa, and the pressure ratio does not exceed 1,30 since atmospheric pressure is approximately 100 kPa.

3.1.2

bare shaft fan

fan without drives, attachments or apperturbances

See ISO 12759.

3.1.3**driven fan**

impeller fitted to or connected to a motor, with or without a drive mechanism, a housing or a means of variable speed drive

See ISO 12759.

3.2**air**

abbreviated term for the expression "air or other gas"

3.3**standard air**

by convention, air with a density of 1,2 kg/m³

3.4 Fan installation categories according to the arrangement of ducting

See Figure 1.

3.4.1**installation category A**

installation with free inlet and free outlet with a partition

See ISO 5801 and ISO 5802.

3.4.2**installation category B**

installation with free inlet and ducted outlet

See ISO 5801 and ISO 5802.

3.4.3**installation category C**

installation with ducted inlet and free outlet

See ISO 5801 and ISO 5802.

3.4.4**installation category D**

installation with ducted inlet and ducted outlet

See ISO 5801 and ISO 5802.

3.4.5**installation category E**

installation with free inlet and free outlet without a partition

3.5 Types of fan according to their function**3.5.1****ducted fan**

fan used for moving air within a duct

NOTE This fan can be arranged in installation category B, C or D (see Figures 2, 3, 4 and 5).

3.5.2**partition fan**

fan used for moving air from one free space to another, separated from the first by a partition having an aperture in which or on which the fan is installed

NOTE This fan can be arranged in installation category A (see Figure 6).

3.5.3

jet fan

fan used for producing a jet of air in a space and unconnected to any ducting

See Figure 7.

NOTE The air jet can be used, for example, for adding momentum to the air within a duct, a tunnel or other space, or for intensifying the heat transfer in a determined zone.

3.5.4

circulating fan

fan used for moving air within a space which is unconnected to any ducting and is usually without a housing

See Figure 8.

3.5.5

air curtain unit

air moving device which produces an air curtain

See Figure 30.

3.5.5.1

air curtain

airstream

directionally controlled airstream, moving across the entire height and width of an opening, which can reduce the infiltration or transfer of air from one side of the opening to the other, and inhibits insects, dust or debris from passing through

3.6 Types of fan according to the fluid path within the impeller

3.6.1

centrifugal fan

fan in which the air enters the impeller with an essentially axial direction and leaves it in a direction perpendicular to this axis

See Figure 2.

NOTE 1 The centrifugal fan is also known as a radial-flow fan.

NOTE 2 The impeller can have one or two inlet(s) and might include a shroud and/or a backplate (centreplate) (see Figure 16).

NOTE 3 The impeller is defined as "backward-curved or inclined", "radial" or "forward-curved", depending on whether the outward direction of the blade at the periphery is backward, radial or forward relative to the direction of the rotation (see Figures 9 and 16).

NOTE 4 A centrifugal fan can be of the low-, medium- or high-pressure type, according to the aspect ratio of fan inlet diameter to outside diameter of the impeller. These terms indicate that the pressure generated at a given flow rate is low, medium or high.

NOTE 5 Figure 9 shows a cross-section through a family of impellers having the same inlet diameter. Fans with ratios of fan inlet/outside impeller diameter of greater than approximately 0,63 mm are considered "low aspect ratio", and lower than approximately 0,4 mm are considered "high aspect ratio". Medium aspect ratio centrifugal fans are intermediate between these two.

NOTE 6 The impeller diameter and the casing scroll radii increase with the pressure range for which the fan is designed.

NOTE 7 These categories are also affected by the ability to run at the necessary peripheral speed (see 5.2 and Table 1).