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Fans — Efficiency classification for fans —

Part 4: Driven fans at maximum operating speed

Ventilateurs — Classification du rendement des ventilateurs —

Partie 4: Ventilateurs entraînés à vitesse maximale de fonctionnement

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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.

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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This first edition of ISO 12759-4, together with ISO 12759-1, ISO 12759-2, ISO 12759-3, ISO 12759-5[1)] and ISO 12759-6[2)], cancels and replaces ISO 12759:2010, which has been technically revised. It also incorporates the Amendment ISO 12759:2010/Amd.1:2013.

A list of all parts in the ISO 12759 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.

1) Under preparation. Stage at the time of publication: ISO/DIS 12759-5:2019.

2) Under preparation. Stage at the time of publication: ISO/CD 12759-6:2019.

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Introduction

The last decade has seen an escalation in the price and an increasing recognition of the finite life of many of the fossil fuels currently used. There is also a belief by many that climatic change is due to increasing levels of carbon dioxide in the atmosphere. This has led to many nations reviewing methods of energy generation and usage.

To maintain economic growth there is therefore a need to promote energy efficiency. This requires better selection of equipment by users and thus better design of this equipment by manufacturers.

Fans of all types are used for ventilation, air conditioning, process engineering – drying, pneumatic conveying – combustion air supply and agriculture. Indeed, the energy use of fans has been calculated to account for nearly 20 % of the global electricity usage.

The fan industry is global in nature, with a considerable degree of exporting and licensing. To ensure that the definitive fan performance characteristics are common throughout the world, a series of standards has been developed. It is the belief of the industry that there is now a need for minimum efficiency standards to be recognised. To encourage their implementation, a classification system is proposed which incorporates a series of efficiency bands. With improvements in technology and manufacturing processes, the minimum efficiency levels could be reviewed and increased over time.

This document can be used by legislators or regulatory bodies for defining future energy-saving targets.

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Fans — Efficiency classification for fans —

Part 4: Driven fans at maximum operating speed

1 Scope

This document establishes a system for the classification of fan efficiency for all fan types driven by motors of nominal rating 0,125 kW and above. It applies to driven fans only, but not to the system (finished original equipment manufacturer's product, for example box fans and roof fans or ventilation system) in which they might be installed. This document describes a number of different procedures to classify the efficiency of a fan or to apply a minimum efficiency limit (MEL). Those procedures are described in:

— ISO 12759-3;

— this document (ISO 12759-4);

— ISO 12759-5;

— ISO 12759-6.

There is no method described to compare these classifications and MEL's.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 5801:2017, *Fans — Performance testing using standardized airways*

ISO 13348:2007, *Industrial fans — Tolerances, methods of conversion and technical data presentation*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
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 to entry: Fans are defined according to their installation category, function, fluid path and operating conditions (see ISO 13349).

[SOURCE: ISO 13349:2010, 3.1.1, — Notes to entry 1 and 3 were deleted.]

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