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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43080.4-2025

**Fans - Efficiency classification for fans - Part 4: Driven fans at
maximum operating speed**

通风机 通风机效率等级 第4部分：含驱动装置最高转速时的通风机

(English Translation)

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Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Symbols
5 General Information
5.1 Overview
5.2 Use of Device Types
5.3 Efficiency Calculation
5.4 Tolerance
6 Rated value
6.1 Overview
6.2 Ventilation fan with drive unit
6.3 Efficiency ratings of axial, forward-curved centrifugal, radial, and mixed-flow fans with drive units
6.4 Centrifugal backward-curved fan with drive unit and no volute, efficiency class
6.5 Cross-flow fans with drive unit, efficiency class
Appendix A (Normative) Example 13 of the Application of Efficiency Curves for Fans with Drive Units
Appendix B (Informative) Compensation Factor
Appendix C (Informative) Variations in Fan Performance for Different Device Types
Appendix D (Informative) Selection of Optimal Ventilation Fans
Appendix E (Informative) Explanatory Notes
References

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 4 of GB/T 43080 "Ventilators - Efficiency Classes". GB/T 43080 has published the following...

part.

---Part 2: Standard Losses of Drive Components;

---Part 3: Fans at maximum speed without drive unit;

---Part 4: Ventilation fans at maximum speed including the drive unit;

---Part 5: Jet Fans.

This document is equivalent to ISO 12759-4:2019 "Ventilators - Efficiency classes - Part 4: Ventilation - Including drive unit - Maximum speed" the ventilation fan.

The following minimal editorial changes have been made to this document.

--- The corresponding section numbers for device types A, B, C and D in ISO 5801:2017 have been corrected (see 5.2).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Wind Turbines (SAC/TC187).

Introduction

Over the past decade, the ventilation industry has not only witnessed the dramatic rise in fossil fuel prices, but also the significant impact on their lifespan.

Our understanding of life has deepened. Recent climate change is caused by the continuous increase in atmospheric carbon dioxide levels, which has led to [various problems] in many countries.

All countries are beginning to examine their energy production and usage methods. For sustained economic growth, we need to improve energy efficiency. This...

Users need to choose more efficient equipment, and equipment manufacturers also need to design better technical solutions.

All types of ventilators are used for ventilation, air conditioning, and in industrial processes (drying, air conveying, combustion blowing) and agriculture.

Wind turbines already account for nearly 20% of the world's total energy consumption.

GB/T 43080 aims to establish relevant regulations for the efficiency class of ventilation fans, and is proposed to consist of 6 parts.

---Part 1: General Requirements. The purpose is to address the classification of power consumption and efficiency levels for various types of ventilation fans, applicable to a wide

range of applications.

Fan.

---Part 2: Standard Losses of Drive Components. The purpose is to provide a basis for estimating the input power and overall efficiency of extended ventilation fan systems.

The method is applicable to all electric motor-driven ventilation systems employing various specific component combinations.

---Part 3: Ventilation Fans at Maximum Speed Without Drive Unit. The purpose is to determine the efficiency class of all types of ventilation fans, using...

The fan body with a nominal shaft power greater than or equal to 0.125kW.

---Part 4: Ventilation Fans at Maximum Speed Including Drive Unit. The purpose is to determine the maximum speed of all types of electrically driven ventilation fans.

Efficiency rating, used for fans with a nominal rated power greater than or equal to 0.125 kW and including a drive unit.

---Part 5: Jet Fans. The purpose is to determine the efficiency rating of all types of jet fans, used for input electrical power of...

5.5kW~155kW jet fans.

---Part 6: Calculation of the Energy Efficiency Index (EER) for Fans. The purpose is to determine the energy efficiency index (EER) of fans containing electric motors and other drive units.

The calculation method is applicable to all types of fans and all specifications of electric motors.

Ventilation fan efficiency class Part 4.

Ventilation fan at maximum speed including drive unit

1 Scope

This document establishes a classification system for the efficiency grades of motors driving ventilation fans with a rated power of 0.125kW and above, and applies only to fans including those with motors driving ventilation fans.

This applies not to ventilation fans with automatic actuators, but is not applicable to the systems in which the ventilation fans are installed (including products finally completed by the original equipment manufacturer, such as enclosure fans, roof fans, etc.).

(Fan or ventilation system). This document specifies several different procedures for classifying fan efficiency grades or minimum efficiency limits (MELs).

The procedures are described in the following documents.

---ISO 12759-3;

---This document;

---ISO 12759-5;

---ISO 12759-6.

These grades cannot be compared with those of MEL.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 44844-2024 Tolerances, conversion and representation of technical parameters for industrial ventilators (ISO 13348:2007, IDT) airways) Note. GB/T 1236-2017 Standardized air duct performance test for industrial fans (ISO 5801:2007, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

Ventilation fan

A rotating machine capable of receiving mechanical energy; it uses mechanical energy to hold air or other fluids in place by means of one or more bladed impellers.

The gas flows continuously. Its work per unit mass is usually no more than 25 kJ/kg.

Note: Ventilation fans are defined according to their type, function, flow path and operating status (see ISO 13349-1:2022).

[Source. ISO 13349-1:2022, 3.1.1, with modifications] 3.2 Fan size the nominal diameter of the impeller.

drive unit

Mechanical devices used to power ventilators include electric motors, belts, couplings, chains, transmission devices, and frequency converters.