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

GB/T 43080.2-2025

**Fans - Efficiency classification for fans - Part 2: Standard losses
for drive components**

通风机 通风机效率等级 第2部分：驱动部件的标准损耗
(English Translation)

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Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms, Definitions, and Symbols
3.1 Terms and Definitions
3.2 Symbol
4 Efficiency Calculation of Ventilation Fan System
4.1 Overview
4.2 Component
4.3 System Integration
5 Results Report
Appendix A (Informative) Power Loss of Ventilation Fan Systems
Appendix B (Informative) EPCA Nominal Motor Efficiency (60Hz Motor)
Appendix C (Informative) IEC 60034-30-150Hz Nominal Motor Efficiency
Appendix D (Informative) Based on the Chinese nominal motor efficiency of reference [1]
Appendix E (Normative) Performance Constants of Rated Horsepower Multiphase Induction Motors Powered by VFD
Appendix F (Normative) Performance Constants of VFD-Powered Rated kW Multiphase Induction Motors
Appendix G (Normative) Performance Constants of HP-level VFDs
Appendix H (Normative) Performance Constants of VFD Rated by kW
Appendix I (Normative) Performance Constants of Multiphase Induction Motors (Full Voltage Supply, Rated HP Motor)
Appendix J (Normative) Performance Constants of Multiphase Induction Motors (Full Voltage Supply, Rated kW Motor)
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 2 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 12759-2:2019 "Fans - Efficiency class of fans - Part 2: Standard losses of drive components".

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 fan industry has not only witnessed the "leap forward" in fossil fuel prices, but also the impact on their service life.

This has led to a deeper understanding. Recent climate change is caused by the continuous increase in atmospheric carbon dioxide levels, which has prompted many countries to focus on...

We must examine our country's energy production and consumption methods. For sustained economic growth, we need to improve energy efficiency. This requires...

Users who choose more efficient equipment also need equipment manufacturers 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: Fans at maximum speed without drive unit. The purpose is to determine the efficiency class of the fan for the nominal shaft.

A ventilator body with a power of 0.125kW or greater.

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

The efficiency rating of the machine is used for ventilators 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) of Ventilation Fans. The purpose is to determine the energy efficiency index of ventilation fans containing electric motors and other drive devices.

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

An extended ventilation system consists of a fan and an electric motor, but may also include a drive unit and a motor controller. While direct connection is preferred...

Measuring the performance of ventilation fan systems is important, but the large number of ventilation fan system configurations often makes testing impractical. This document provides a method for measuring the performance of commonly used components.

This document presents a standardized method for estimating the performance of ventilation fan systems using component modeling. The calculations published in this document provide ventilation fan users with a working method.

It allows for a consistent and uniform comparison of available fan system configurations.

Ventilation fan efficiency rating Part 2: Standard Losses of Drive Components

1 Scope

This document establishes the efficiency ratings for ventilation fans. It applies to all electrically driven ventilation fan systems that employ the following ratings...

Specific component combinations of meaning.

a) The aerodynamic performance of the fan as determined by recognized performance standards;

b) Multiphase induction motors with the nominal motor efficiency specified in this document;

Note 1: Other types of electric motors have been explicitly excluded.

c) Pulse-width modulation variable frequency drives (VFDs) used with a single motor;

Note 2: This does not include individual VFDs that serve multiple parallel fan motors.

d) Mechanical power transmission devices using V-belts, flat belts, toothed belts, or couplings.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below.

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.

ways)

Note: GB/T 1236-2017 Standardized air duct performance test for industrial fans (ISO 5801:2007, IDT) ISO 13348 Tolerances, conversions and methods of expressing technical parameters for industrial fans.

Note: GB/T 44844-2024 Tolerances, Conversion and Technical Parameter Representation Methods for Industrial Ventilation Fans (ISO 13348:2007, IDT) ANSI/AMCA230 Laboratory test methods for ratings and certification of air circulation fans.

flowfansforrating)

3.1 Terms and Definitions

The following terms and definitions apply to this document.

3.1.1

Fan system

Ventilation fan products, including all auxiliary equipment, accessories, motors, drives, and controllers required for or used in ventilation fan applications.

3.1.2

V-belt transmission