
**Fans — Efficiency classification for
fans —**

Part 5:
Jet fans

*Ventilateurs — Classification du rendement des ventilateurs —
Partie 5: Ventilateurs accélérateurs*



This document is a preview generated by ELS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Fans.....	1
3.2 Quantities.....	2
3.3 Fan efficiency.....	2
3.4 Fan efficiency grades.....	3
4 Fan installation, efficiency and tolerance	3
4.1 General.....	3
4.2 Reference configuration of a jet fan.....	3
4.3 Use of installation categories.....	3
4.3.1 General.....	3
4.3.2 Configuration E installations.....	3
5 Ratings	3
5.1 General.....	3
5.2 Jet fans.....	4
Annex A (informative) Calculation of jet fan efficiency	7
Annex B (informative) Determination of efficiency grade for a jet fan	8
Bibliography	9

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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 156, *Ventilation for buildings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

Introduction

The last decade has seen both 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 its manufacturers.

Fans of all types are used for ventilation and air conditioning, for process engineering (drying, pneumatic conveying and combustion air supply) and agriculture. Indeed, the energy use of fans has been calculated as nearly 20 % of total worldwide energy usage.

The fan industry is of a global nature, with a considerable degree of exporting and licensing. To ensure that the defining fan performance characteristics are common throughout the world, a series of International Standards has been developed. It is the belief of the industry that there is now a need for minimum efficiency standards to be recognized. 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 can be reviewed and increased over time.

This document is specific to jet fans whose efficiency ratings are based on thrust.

The ISO 12759 series describes a number of different procedures to classify the efficiency of a fan or to apply a minimum efficiency limit (MEL). These procedures are described in:

- ISO 12759-3;
- ISO 12759-4;
- this document (ISO 12759-5);
- ISO 12759-6.

There is no method described to compare these classifications and MELs.

NOTE In this document “air” is the abbreviated term for “air and other gases”.

Fans — Efficiency classification for fans —

Part 5: Jet fans

1 Scope

This document establishes a classification of fan efficiency for all jet fan types driven by motors with an electrical input power range from 5,5 kW to 155 kW (and this is likely to be in the size range 500 mm to 1600 mm diameter with motors rated between 5,5 kW and 150 kW from IEC 60034-30-1).

This document is not applicable to jet fans for use in enclosed car parks.

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

2 Normative references

There are no normative references in this document.

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 Fans

3.1.1

fan

rotary bladed machine which 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 configuration, function, fluid path and operating conditions.

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

3.1.2

jet fan

fan used for producing a jet of air in a space and not connected to any ducting

Note 1 to entry: It is type E category or configuration. Performance shall only be expressed as thrust and efficiency is determined from thrust measurement or calculation. Performance characteristics relating to pressure development are not compliant.