



**International
Standard**

ISO 21684

**Fans — Laboratory test methods for
air circulating fans**

**First edition
2025-09**

**iTeh Standards
(<https://standards.itih.ai>)
Document Preview**

[ISO 21684:2025](https://standards.itih.ai/catalog/standards/iso/38775f3d-3930-4252-bf7f-0d04abe86f4e/iso-21684-2025)

<https://standards.itih.ai/catalog/standards/iso/38775f3d-3930-4252-bf7f-0d04abe86f4e/iso-21684-2025>

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

ISO 21684:2025

<https://standards.itih.ai/catalog/standards/iso/38775f3d-3930-4252-bf7f-0d04abe86f4e/iso-21684-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

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	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Air circulating fans	2
3.2 Fan performance variables	3
3.3 Force	3
3.4 General definitions	3
3.5 Psychrometrics	4
3.6 Test configuration	4
4 Symbols, abbreviated terms and subscripts	5
4.1 Symbols and abbreviated terms	5
4.2 Subscripts	5
5 Instruments and methods of measurement	6
5.1 Accuracy	6
5.1.1 General	6
5.1.2 Instrument accuracy	6
5.1.3 Measurement uncertainty	6
5.1.4 Uncertainty of a result	6
5.2 Measurements to determine thrust and airflow rate	7
5.2.1 Airflow rate	7
5.2.2 Thrust	7
5.2.3 Dimensional measurements	7
5.3 Power	7
5.3.1 General	7
5.3.2 Meters	7
5.3.3 Calibration	8
5.3.4 Averaging	8
5.4 Fan speed	8
5.5 Air density	8
5.5.1 General	8
5.5.2 Thermometers	8
5.5.3 Barometers	8
6 Equipment and Setups	9
6.1 Allowable test setups	9
6.2 Load cell orientation	9
6.3 Minimum testable configuration	9
7 Observations and Conduct of Test	9
7.1 General test requirements	9
7.1.1 Equilibrium	9
7.1.2 Extraneous airflow	10
7.1.3 Run-in requirements	10
7.2 Data to be recorded	10
7.2.1 Test unit	10
7.2.2 Test setup	10
7.2.3 Instruments	10
7.2.4 Test data	10
7.3 Test procedures	11
8 Calculations	11
8.1 Calibration correction	11
8.2 Ambient air density	11

ISO 21684:2025(en)

8.3	Thrust.....	12
8.4	Area	12
8.5	Airflow rate	12
8.6	Power	12
8.7	Fan total pressure.....	13
8.8	Overall efficiency.....	13
8.9	Circulating fan efficacy	13
8.10	Ceiling Fan Energy Index (C)	13
8.11	Thrust efficiency ratio.....	14
9	Report and results of test.....	14
9.1	Test report and results of test.....	14
9.2	Personnel.....	16
10	Figures	17
Annex A (informative) Air circulating fan subcategories		24
Bibliography		28

iTeh Standards (<https://standards.iteh.ai>) Document Preview

ISO 21684:2025

<https://standards.iteh.ai/catalog/standards/iso/38775f3d-3930-4252-bf7f-0d04abe86f4e/iso-21684-2025>

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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*.

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.

ISO 21684:2025

<https://standards.iteh.ai/catalog/standards/iso/38775f3d-3930-4252-bf7f-0d04abe86f4e/iso-21684-2025>