



**STANDARD**

**ANSI/ASHRAE Standard 128-2018**  
(Supersedes ANSI/ASHRAE Standard 128-2011)

# Methods of Rating Portable Air Conditioners

Approved by ASHRAE on May 31, 2018; and by the American National Standards Institute on June 1, 2018.

ASHRAE® Standards are scheduled to be updated on a five-year cycle; the date following the Standard number is the year of ASHRAE approval. The latest edition of an ASHRAE Standard may be purchased on the ASHRAE website ([www.ashrae.org](http://www.ashrae.org)) or from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: [orders@ashrae.org](mailto:orders@ashrae.org). Fax: 678-539-2129. Telephone: 404-636-8400 (worldwide) or toll free 1-800-527-4723 (for orders in US and Canada). For reprint permission, go to [www.ashrae.org/permissions](http://www.ashrae.org/permissions).

© 2018 ASHRAE

ISSN 1041-2336



**ASHRAE Standard Project Committee 128**  
**Cognizant TC: 9.2, Industrial Air Conditioning**  
**SPLS Liaison: Srinivas Katipamula**

Deep Ghosh\*, *Chair*  
N. Eileen Jensen\*, *Secretary*

Douglass S. Abramson\*  
Erich Binder\*  
Sang Lee\*

John B. Riley\*  
Len Swatkowski\*

\* Denotes members of voting status when the document was approved for publication

---

**ASHRAE STANDARDS COMMITTEE 2017–2018**

Steven J. Emmerich, *Chair*  
Donald M. Brundage, *Vice-Chair*  
Niels Bidstrup  
Michael D. Corbat  
Drury B. Crawley  
Julie M. Ferguson  
Michael W. Gallagher  
Walter T. Grondzik  
Vinod P. Gupta  
Susanna S. Hanson

Roger L. Hedrick  
Rick M. Heiden  
Jonathan Humble  
Srinivas Katipamula  
Kwang Woo Kim  
Larry Kouma  
Arsen K. Melikov  
R. Lee Millies, Jr.  
Karl L. Peterman  
Erick A. Phelps

David Robin  
Peter Simmonds  
Dennis A. Stanke  
Wayne H. Stoppelmoor, Jr.  
Richard T. Swierczyna  
Jack H. Zarour  
Lawrence C. Markel, *BOD ExO*  
M. Ginger Scoggins, *CO*

Steven C. Ferguson, *Senior Manager of Standards*

---

**SPECIAL NOTE**

This American National Standard (ANS) is a national voluntary consensus Standard developed under the auspices of ASHRAE. *Consensus* is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this Standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this Standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation.

ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Senior Manager of Standards of ASHRAE should be contacted for

- a. interpretation of the contents of this Standard,
- b. participation in the next review of the Standard,
- c. offering constructive criticism for improving the Standard, or
- d. permission to reprint portions of the Standard.

---

**DISCLAIMER**

ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

---

**ASHRAE INDUSTRIAL ADVERTISING POLICY ON STANDARDS**

ASHRAE Standards and Guidelines are established to assist industry and the public by offering a uniform method of testing for rating purposes, by suggesting safe practices in designing and installing equipment, by providing proper definitions of this equipment, and by providing other information that may serve to guide the industry. The creation of ASHRAE Standards and Guidelines is determined by the need for them, and conformance to them is completely voluntary.

In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

**CONTENTS**  
**ANSI/ASHRAE Standard 128-2018**  
**Methods of Rating Portable Air Conditioners**

<b>SECTION</b>	<b>PAGE</b>
Foreword .....	2
1 Purpose.....	2
2 Scope.....	2
3 Definitions .....	2
4 General Requirements.....	2
5 Ratings Requirements.....	2
6 Tests .....	2
7 Sampling Plan.....	3
8 Nameplate Information.....	3
9 References.....	3
Informative Appendix A: Explanation of Acceptable Sampling Plan .....	4

**NOTE**

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at [www.ashrae.org/technology](http://www.ashrae.org/technology).

© 2018 ASHRAE

1791 Tullie Circle NE · Atlanta, GA 30329 · [www.ashrae.org](http://www.ashrae.org) · All rights reserved.

ASHRAE is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.  
ANSI is a registered trademark of the American National Standards Institute.

**(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objections on informative material are not offered the right to appeal at ASHRAE or ANSI.)**

## FOREWORD

*This is a revision of ANSI/ASHRAE Standard 128-2011, Method of Rating Portable Air Conditioners.*

*The scope continues to apply to portable air-conditioning units with a cooling capacity of 65,000 Btu/h (19,000 W) and greater. This reflects the fact that smaller portable air conditioners are covered by ANSI/AHAM Standard PAC-1, and a similar standard, Standard C370, has been issued by the Canadian Standards Association. Both of these cover portable air conditioners with capacities up to 65,000 Btu/h (19,000 W).*

### 1. PURPOSE

The purpose of this standard is to establish a uniform set of requirements for rating the cooling capacity of portable air conditioners.

### 2. SCOPE

**2.1** This standard is applicable to commercial-type portable air-conditioning units with a rated cooling capacity of 65,000 Btu/h (19,000 W) and greater, including those with heating capacity.

**2.2** The standard does not apply to

- a. the testing and rating of individual assemblies, such as condensing units or direct expansion fan-coil units for separate use;
- b. computer or data-processing-room air conditioners within the scope of ASHRAE Standard 127<sup>1</sup>; or
- c. room air conditioners within the scope of CAN/CSA-C368.1<sup>2</sup> or AHAM RAC-1<sup>3</sup>.

### 3. DEFINITIONS

In this standard, the word “shall” is used to express a requirement, a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard. Notes accompanying sections do not include requirements or alternative requirements; the purpose of a note accompanying a section is to separate from the text explanatory or informative material. Notes to tables and figures are considered part of the table or figure and may be written as requirements. Legends to equations and figures are considered requirements.

### 4. GENERAL REQUIREMENTS

**4.1** This standard addresses commercial portable air-conditioning units, which essentially consist of a self-contained

portable refrigerant-based cooling system to provide localized cooling in industrial and commercial applications.

**4.2** Portable air conditioners shall be designed, constructed, and assembled so as to meet the applicable electrical and refrigeration safety requirements for the Canadian and/or U.S. market, as appropriate. For Canada, applicable requirements are found in the Canadian Electrical Code, Part 1<sup>4</sup>, and CSA Standards B52<sup>5</sup> and C22.2 No. 117<sup>6</sup>. For the United States, applicable requirements are found in UL Standard 484<sup>7</sup>, ASHRAE Standard 15<sup>8</sup>, and the National Electrical Code (NEC)<sup>9</sup>.

## 5. RATINGS REQUIREMENTS

**5.1 Standard Cooling Capacity.** Standard cooling capacity shall be stated as total (sensible and latent) cooling capacity and shall include the effects of evaporator circulating-fan heat. Input ratings shall be the total power input to the compressors, fan motors, controls, and pumps.

Ratings of water-cooled units that are not equipped with an integral pump shall include a total allowance for the cooling-tower fan motor and circulating water-pump motor power inputs of 10 W per 1000 Btu/h (34.1 W per 1000 W) cooling capacity.

**5.2 Standard Cooling Capacity Rating.** Standard cooling capacity ratings shall be expressed in the nearest multiple of 1000 Btu/h (300 W).

**5.3 Energy Efficiency Ratio (EER) Ratings.** Energy efficiency ratio (EER) in Btu/W·h (W/W) shall be expressed in increments of 0.1.

**5.4 Application Ratings.** Ratings at conditions of temperature and/or air quantity other than those specified in Section 6 may be established as application ratings and shall be based on the data produced by the tests prescribed in Section 6.

### 5.5 Published Ratings

**5.5.1** The performance ratings (EER and cooling capacity) of portable air conditioners published by the manufacturer in its specifications, literature, or advertising shall be determined by the methods prescribed in Section 6.

**5.5.2** The cooling capacity ratings shall be expressed in Btu/h (watts) in accordance with the tests defined in Section 6.3. Tons or other units shall not be used as capacity designations.

**5.5.3** To comply with this standard, published ratings of standard cooling capacity, standard EER, and power input shall be based on data obtained in accordance with the tests specified in Section 6.

Portable air-conditioning production units, when tested, shall have measured ratings equal to or better than the published ratings, except for an allowance to cover testing and manufacturing variations. The allowance is such that each unit is required to have a measured rating of at least 95% of the unit's published ratings.

## 6. TESTS

**6.1 Method of Test.** Tests shall be conducted in accordance with this standard and the requirements provided in ASHRAE