# ANSI/AHRI Standard 366 (SI)

## 2009 Standard for

# Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units

Approved American National Standard
ANSI

Approved by ANSI on 4 January 2011

AHRI Air-Conditioning, Heating, and Refrigeration Institute
2111 Wilson Boulevard, Suite 500
Arlington, VA 22201, USA
www.ahrinet.org
PH 703.524.8800
FX 703.562.1942

AVA Documents
Document Sharing Hub

Full document details: AHRI Standard 366-2009 (SI) - Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units

**IMPORTANT**

## *SAFETY DISCLAIMER*

AHRI does not set safety standards and does not certify or guarantee the safety of any products, components or systems designed, tested, rated, installed or operated in accordance with this standard/guideline. It is strongly recommended that products be designed, constructed, assembled, installed and operated in accordance with nationally recognized safety standards and code requirements appropriate for products covered by this standard/guideline.

AHRI uses its best efforts to develop standards/guidelines employing state-of-the-art and accepted industry practices. AHRI does not certify or guarantee that any tests conducted under the standards/guidelines will not be non-hazardous or free from risk.

Note:

This standard supersedes ARI Standard 365-2002.
For I-P ratings, see ANSI/AHRI Standard 365 (I-P) – 2009.

Price $15.00 (M) $30.00 (NM)
Printed in U.S.A.

© Copyright 2009, by Air-Conditioning, Heating, and Refrigeration Institute
Registered United States Patent and Trademark Office

Document Sharing Hub

Full document details: AHRI Standard 366-2009 (SI) - Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units

## TABLE OF CONTENTS


PAGE

Section 1. Purpose ..... 1

Section 2. Scope ..... 1

Section 3. Definitions ..... 1

Section 4. Classifications ..... 2

Section 5. Test Requirements ..... 2

Section 6. Rating Requirements ..... 3

Section 7. Minimum Data Requirements for Published Ratings ..... 7

Section 8. Operating Requirements ..... 8

Section 9. Marking and Nameplate Data ..... 9

Section 10. Conformance Conditions ..... 9


## TABLES


Table 1. Classifications of Commercial and Industrial Air-Conditioning Condensing Units ..... 2

Table 2. Standard Rating Conditions ..... 3

Table 3. ICOP Part-Load Rating Conditions ..... 5


## APPENDICES


Appendix A. References - Normative ..... 10

Appendix B. References - Informative ..... 10



Documents
Document Sharing Hub

Full document details: AHRI Standard 366-2009 (SI) - Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units

# PERFORMANCE RATING OF COMMERCIAL AND INDUSTRIAL UNITARY AIR-CONDITIONING CONDENSING UNITS

## Section 1. Purpose

**1.1** *Purpose.* The purpose of this standard is to establish for Commercial and Industrial Unitary Air-Conditioning Condensing Units: definitions; classifications; test requirements; rating requirements; minimum data requirements for Published Ratings; operating requirements; marking and nameplate data; and conformance conditions.

**1.1.1** *Intent.* This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

**1.1.2** *Review and Amendment.* This standard is subject to review and amendment as technology advances.

## Section 2. Scope

**2.1** *Scope.* This standard applies to factory-made Commercial and Industrial Unitary Air-Conditioning Condensing Units greater than or equal to 40.0 kW as defined in Section 3.

**2.1.1** *Energy Source.* This standard applies only to electrically-driven, mechanical compression-type condensing units.

**2.2** *Exclusions.* This standard does not apply to the testing and rating of condensing units for refrigeration purposes, as defined in AHRI Standard 520.

## Section 3. Definitions

All terms in this document shall follow the standard industry definitions in the current edition of ASHRAE *Terminology of Heating, Ventilation, Air-Conditioning and Refrigeration* unless otherwise defined in this section.

**3.1** *Bubble Point.* Refrigerant liquid saturation temperature at a specified pressure.

**3.2** *Commercial and Industrial Unitary Air-Conditioning Condensing Unit.* A factory-made assembly of refrigeration components designed to compress and liquefy a specific refrigerant. It consists of one or more refrigerant compressors, refrigerant condensers (air-cooled, evaporatively – cooled, and/or water-cooled), condenser fans and motors (where used) and factory-supplied accessories.

**3.3** *Cooling Capacity.* The capacity in watts obtained at specific conditions. It is equal to the increase in total enthalpy between the liquid refrigerant entering the expansion valve and superheated return gas multiplied by the mass flow rate of the refrigerant.

**3.4** *Coefficient of Performance (COP).* A ratio of the Cooling Capacity in kilowatts to the power input in kilowatts at any given set of Rating Conditions.

**3.5** *Dew Point.* Refrigerant vapor saturation temperature at a specified pressure.

**3.6** *Integrated Coefficient of Performance (ICOP).* A single number part-load efficiency figure of merit calculated per the method described in this standard.

**3.7** *Integrated Part-Load Value (IPLV).* A single number cooling part-load figure of merit calculated per the method described in Appendix C.

Documents
Document Sharing Hub



Full document details: AHRI Standard 366-2009 (SI) - Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units