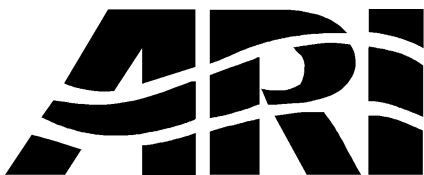


Fourth DRAFT DATED AUGUST 28, 2000

**2000
STANDARD for**

**COMMERCIAL
AND
INDUSTRIAL
UNITARY AIR-
CONDITIONING
AND HEAT
PUMP
EQUIPMENT**



**AIR-CONDITIONING &
REFRIGERATION
INSTITUTE**

Standard 340/360

IMPORTANT

SAFETY RECOMMENDATIONS

It is strongly recommended that the product be designed, constructed, assembled and installed in accordance with nationally recognized safety requirements appropriate for products covered by this standard.

ARI, as a manufacturer's trade association, uses its best efforts to develop standards employing state-of-the-art and accepted industry practices. However, ARI does not certify or guarantee safety of any products, components or systems designed, tested, rated, installed or operated in accordance with these standards or that any tests conducted under its standards will be non-hazardous or free from risk.

ARI CERTIFICATION PROGRAM PROVISIONS

Scope of the Certification Program

The Certification Program includes all unitary air-conditioning and air-source unitary heat pump equipment, and air-conditioning condensing units rated at or above 65,000 Btu/h [19000W] at ARI Standard Rating Conditions (Cooling) but below 250,000 Btu/h [73200W] at ARI Standard Rating Conditions (Cooling).

Certified Ratings

The following Certification Program ratings shall be verified by test:

Unitary Air-Conditioners and Air-Conditioning Condensing Units (see Section 5)

Air-Cooled, Water-Cooled and Evaporative Cooled from 65,000 Btu/h [19000 W] to below 250,000 Btu/h [73200 W].

1. ARI Standard Rating Cooling Capacity Btu/h [W]
2. Energy Efficiency Ratio, EER, Btu/W·h
3. Integrated Part Load Value [IPLV]

Air-Source Unitary Heat Pump Equipment (see Section 5)

Air-Cooled from 65,000 Btu/h [19000W] to below 250,000 Btu/h [73200W]

1. ARI Standard Rating Cooling Capacity, Btu/h [W]
2. Energy Efficiency Ratio, EER, Btu/W·h [W/W]
3. High Temperature Heating Standard Rating Capacity, Btu/h [W]
4. High Temperature Coefficient of Performance (COP 47EF) [COP 8.3EC]
5. Low Temperature Heating Standard Rating Capacity, Btu/h [W]
6. Low Temperature Coefficient of Performance (COP 17EF) [COP – 8.3°C]
7. Integrated Part Load Value [IPLV]

Conformance to the requirements of the Maximum Operating Condition Test, Voltage Tolerance Test, Low-Temperature Operation Test (Cooling), Insulation Efficiency Test (Cooling), and Condensate Disposal Test (Cooling), (see Section 6) are also verified by test.

Note:

This standard supersedes ARI Standard 340/360-93.

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COMMERCIAL AND INDUSTRIAL UNITARY AIR-CONDITIONING AND HEAT PUMP EQUIPMENT

Section 1. Purpose

1.1 Purpose. The purpose of this standard is to establish for Commercial Industrial Unitary Air-Conditioning and Heat Pump Equipment: 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.

1.2 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-Conditioners and Heat Pumps defined in Section 3.

2.1.1 Energy Source. This standard applies only to electrically operated, vapor compression refrigeration systems.

2.2 Exclusions. This standard does not apply to the rating and testing of individual assemblies, such as condensing units or coils, for separate use.

2.2.1 This standard does not apply to unitary air-conditioners as defined in ARI Standard 210/240, *Unitary Air-Conditioning and Air-Source Heat Pump Equipment*, with capacities less than 65,000 Btu/h [19000W], or to unitary heat operated air-conditioning equipment, or water-source heat pumps as defined in ISO 13256-1, *Water-Source Heat Pumps – Testing and Rating for Performance – Part I: Water-to-Air and Brine-to-Air Heat Pumps*, 1998.

Section 3. Definitions

3.1 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.

3.2 Coefficient of Performance, Heating (COP). A ratio of the cooling/heating capacity in Watts [W] at any given set of rating conditions expressed in Watts/Watt [W/W] . For heating COP, supplementary resistance heat shall be excluded.-

3.3 Commercial and Industrial Unitary Air-Conditioner. One or more factory-made assemblies, which includes a cooling coil, an air moving device, a compressor(s) and condenser combination, and may include a heating function as well. Where such equipment is provided in more than one assembly, the separate assemblies are to be designed to be used together, and the requirements of rating outlined in this standard shall be based upon the use of matched assemblies.

3.3.1 Functions. The functions of commercial and industrial unitary air-conditioners, either alone or in combination with a heating plant, are to provide air-circulation, cooling, dehumidification, and may include the functions of heating, humidifying, and air cleaning.

3.4 Commercial and Industrial Unitary Heat Pump. One or more factory-made assemblies, which normally include an indoor conditioning coil, an air moving device, compressor(s), and an outdoor coil(s), including means to provide a heating function and may or may not include a cooling function. When such equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together, and the requirements of rating outlined in the standard shall be based upon the use of matched assemblies.

3.4.1 Functions. Commercial and industrial unitary heat pumps shall provide the function of heating, air circulation and may include the function of air cooling, dehumidifying or humidifying and air cleaning.

3.5 Energy Efficiency Ratio (EER). A ratio of the cooling capacity in Btu/h to the power input in watts at any given set of rating conditions expressed in Btu/WA·h .

3.5.1 Standard Energy Efficiency Ratio. A ratio of the capacity to power input values obtained at Standard Rating Conditions.