ANSI/AHRI Standard 1301-2013 (R2023) (SI)

2013 R2023 Standard for

Performance Rating of Commercial Heat Pump Water Heaters

Approved by ANSI on 18 August 2023

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ICS Code: 91.140.65

Note:

This is a new standard

For I-P ratings, see ANSI/AHRI Standard 1300-2013 (R2023) (I-P).

This standard was reaffirmed June 2023.

This standard was approved as an American National Standard (ANS) on 18 August 2023.

Forward:

Commercial Heat Pump Water Heaters (CHPWH) use an electrically driven, mechanical vapor compression refrigeration system to transfer heat from a heat source (e.g. air, ground, water, brine solution) to potable water to provide service hot water. This rating method standard covers CHPWH that are not subject to the U.S. Department of Energy (DOE) efficiency regulations for residential heat pump water heaters.

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PERFORMANCE RATING OF COMMERCIAL HEAT PUMP WATER HEATERS

Section 1. Purpose

1.1 *Purpose*. The purpose of this standard is to establish for Commercial Heat Pump Water Heaters (CHPWH): definitions; test requirements; classifications; 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 *Limits*. This standard covers CHPWH with input capacities less than or equal to 50 kW, including all three phase products and single phase products not covered by the Code of Federal Regulations, 10 CFR Part 430, Appendix E to Subpart B of Part 430 - *Uniform Test Method for Measuring the Energy Consumption of Water Heaters*.

1.1.3 *Review and Amendments*. This standard is subject to review and amendment as technology advances.

Section 2. Scope

2.1 *Scope*. This standard applies to factory assembled Commercial Heat Pump Water Heaters (CHPWH) defined as equipment to provide potable or service hot water using alternate sources of energy as air, water and ground (geothermal) by means of electrically driven, mechanical vapor compression refrigerant systems. Different type of CHPWH are defined in Section 3.

2.1.1 This standard does not apply to testing and rating of heat pumps or water heaters covered in ANSI/AHRI/ASHRAE ISO Standard 13256-1 & 2, ANSI/AHRI Standard 1160, or ANSI/AHRI Standard 870.

2.1.2 This standard does not apply to testing and rating of Air-Cooled or Water Cooled Heat Reclaim Condensers covered in ANSI/AHRI Standard 550/590 with Addenda.

Section 3. Definitions

All terms in this document will follow the standard industry definitions in the *ASHRAE Wikipedia* website (https://www.ashrae.org/technical-resources/authoring-tools/terminology), unless otherwise defined in this section.

3.1 *Condenser*. A refrigeration system component that condenses refrigerant vapor. Desuperheating and sub-cooling of refrigerant may occur as well.

3.1.1 *Water-Cooled Condenser*. A component that utilizes refrigerant-to-water heat transfer means causing the refrigerant to condense and water to be heated.

3.2 *Coefficient of Performance*. A ratio of the heating capacity in kW, to the power input value in kW at any given set of rating conditions expressed in kW/kW.

3.3 *Evaporator*. A refrigeration system component that evaporates refrigerant liquid and extracts heat from the air, ground or a fluid.

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