

ANSI/AHRI Standard 1500

2015 Standard for

Performance Rating of Commercial Space Heating Boilers



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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 its standards/guidelines will be non-hazardous or free from risk.

Note:

This standard supersedes AHRI Hydronics Institute Standard BTS-2000 Rev. 06.07.

INFORMATIVE NOTE

AHRI CERTIFICATION PROGRAM PROVISIONS

Scope of the Certification Program (See Section 2 for Scope of the Standard)

The certification program includes all gas- and oil-fired steam and hot water Heating Boilers with inputs ranging from 300,000 Btu/h to 2,500,000 Btu/h. Models within a model series, or individual boiler models, having inputs over 2,500,000 Btu/h may be included in the program at the Participant's option.

Certified Ratings

The following certification program ratings are verified by test:

All steam boilers, and hot water boilers from 300,000 Btu/h up to and including 2,500,000 Btu/h.

1. Thermal Efficiency, % (required)
2. Combustion Efficiency, % (optional)

Hot water boilers above 2,500,000 Btu/h.

1. Combustion Efficiency, % (required)
2. Thermal Efficiency, % (optional)

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PERFORMANCE RATING OF COMMERCIAL SPACE HEATING BOILERS

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish for Commercial Space Heating Boilers: definitions; test requirements; rating requirements; minimum data requirements for Published Ratings; marking and nameplate data; and conformance conditions.

1.1.1 *Intent.* This standard is intended for the guidance of the industry, including manufacturers, designers, 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 gas and oil-fired steam and hot water Packaged Boilers, as defined in Section 3, that have an Input Rating equal to or greater than 300,000 Btu/h, that are:

2.1.1 A steam boiler designed to operate at or below a steam pressure of 15 psig; or

2.1.2 A hot water boiler designed to operate at or below a water pressure of 160 psig and a temperature of 250 °F; or

2.1.3 A boiler that is designed to be capable of supplying either steam or hot water, and designed to operate under the conditions in Sections 2.1.1 and 2.1.2 of this scope.

2.2 Products covered under this standard are for use in heating or space conditioning applications, utilize any means of natural or mechanical draft configurations, and may be intended for installation in either indoor or outdoor environments.

Section 3. Definitions

All terms in this document will follow the standard industry definitions in the *ASHRAE Terminology* website (<https://www.ashrae.org/resources--publications/free-resources/ashrae-terminology>) unless otherwise defined in this section.

3.1 *Barometric Draft Regulator.* A balanced damper device attached to the vent connector to control draft (negative pressure).

3.2 *Boiler.* A closed direct fired pressure vessel intended for use in heating water or generating steam to be used external to itself.

3.2.1 *Atmospheric Boiler.* A Packaged Boiler with a gas Atmospheric Burner and that operates with a non-positive Vent static pressure.

3.2.2 *Condensing Boiler.* A Boiler which will, during the laboratory tests prescribed in this standard, condense part of the water vapor in the flue gases and which is equipped with a means of collecting and draining this condensate from the heat exchange section.

3.2.3 *Direct Vent Boiler.* A Boiler (indoor) with the means or instructions for all air for combustion to be derived directly from the outdoors.