Department of Energy  

§ 431.102

(c) Each standard size packaged terminal air conditioner or packaged terminal heat pump manufactured on or after September 30, 2012 and each non-standard size packaged terminal air conditioner or packaged terminal heat pump manufactured on or after September 30, 2010, shall have an Energy Efficiency Ratio and Coefficient of Performance no less than:

<table>
<thead>
<tr>
<th>Equipment class</th>
<th>Equipment</th>
<th>Category</th>
<th>Cooling capacity (British thermal units per hour [Btu/h])</th>
<th>Energy conservation standards *</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTAC</td>
<td>Standard Size</td>
<td>&lt;7,000</td>
<td>EER = 11.7</td>
<td>EER = 13.8 – (0.300 × Cap**)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,000–15,000</td>
<td>EER = 9.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;15,000</td>
<td>EER = 9.4</td>
<td>EER = 10.9 – (0.213 × Cap**)</td>
</tr>
<tr>
<td>Non-Standard Size</td>
<td>&lt;7,000</td>
<td>EER = 7.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,000–15,000</td>
<td>EER = 11.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;15,000</td>
<td>EER = 9.5</td>
<td>COP = 3.3</td>
</tr>
<tr>
<td>PTHP</td>
<td>Standard Size</td>
<td>&lt;7,000</td>
<td>EER = 9.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,000–15,000</td>
<td>COP = 2.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;15,000</td>
<td>COP = 2.7</td>
<td></td>
</tr>
<tr>
<td>Non-Standard Size</td>
<td>&lt;7,000</td>
<td>EER = 10.8 – (0.213 × Cap**)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,000–15,000</td>
<td>COP = 2.9 – (0.026 × Cap**)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;15,000</td>
<td>EER = 7.6</td>
<td></td>
</tr>
</tbody>
</table>

* For equipment rated according to the DOE test procedure, all EER values must be rated at 95 °F outdoor dry-bulb temperature for air-cooled products and evaporatively-cooled products and at 85 °F entering water temperature for water-cooled products. All COP values must be rated at 47 °F outdoor dry-bulb temperature for air-cooled products, and at 70 °F entering water temperature for water-source heat pumps.

** Cap means cooling capacity in thousand British thermal units per hour (Btu/h) at 95 °F outdoor dry-bulb temperature.

(d) Each water-cooled and evaporatively-cooled commercial package air conditioning and heating equipment with a cooling capacity at or above 240,000 Btu/h and less than 760,000 Btu/h manufactured on or after January 10, 2011, shall meet the following standard levels:

1. For equipment that utilizes electric resistance heat or without heating, the energy efficiency ratio must be not less than 11.0.

2. For equipment that utilizes all other types of heating, the energy efficiency ratio must be not less than 10.8.

§ 431.101 Purpose and scope.

This part contains energy conservation requirements for certain commercial water heaters, hot water supply boilers and unfired hot water storage tanks, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311-6317.

§ 431.102 Definitions concerning commercial water heaters, hot water supply boilers, and unfired hot water storage tanks.

The following definitions apply for purposes of this part, and of subparts J through M of this part. Any words or terms not defined in this section or elsewhere in this part shall be defined as provided in section 340 of the Act, 42 U.S.C. 6311.


Subpart G—Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

Source: 69 FR 61983, Oct. 21, 2004, unless otherwise noted.
§ 431.105 Hot water supply boiler means a packaged boiler that is industrial equipment and that,

(1) Has an input rating from 300,000 Btu/hr to 12,500,000 Btu/hr and of at least 4,000 Btu/hr per gallon of stored water,

(2) Is suitable for heating potable water, and

(3) Meets either or both of the following conditions:
   (i) It has the temperature and pressure controls necessary for heating potable water for purposes other than space heating, or
   (ii) The manufacturer’s product literature, product markings, product marketing, or product installation and operation instructions indicate that the boiler’s intended uses include heating potable water for purposes other than space heating.

Instantaneous water heater means a water heater that has an input rating not less than 4,000 Btu/hr per gallon of stored water, and that is industrial equipment, including products meeting this description that are designed to heat water to temperatures of 180 °F or higher.

Packaged boiler means a boiler that is shipped complete with heating equipment, mechanical draft equipment and automatic controls; usually shipped in one or more sections and does not include a boiler that is custom designed and field constructed. If the boiler is shipped in more than one section, the sections may be produced by more than one manufacturer, and may be originated or shipped at different times and from more than one location.

R-value means the thermal resistance of insulating material as determined based on ASTM Standard Test Method C177-97 or C518-91 and expressed in (°F·ft²·h/Btu).

Standby loss means the average hourly energy required to maintain the stored water temperature, expressed as applicable either (1) as a percentage (per hour) of the heat content of the stored water and determined by the formula for S given in Section 2.10 of ANSI Z21.10.3-1998, denoted by the term “S,” or (2) in Btu per hour based on a 70 °F temperature differential between stored water and the ambient temperature, denoted by the term “SL.”

Storage water heater means a water heater that heats and stores water within the appliance at a thermostatically controlled temperature for delivery on demand and that is industrial equipment. Such term does not include units with an input rating of 4,000 Btu/hr or more per gallon of stored water.

Tank surface area means, for the purpose of determining portions of a tank requiring insulation, those areas of a storage tank, including hand holes and manholes, in its uninsulated or pre-insulated state, that do not have pipe penetrations or tank supports attached.

Thermal efficiency for an instantaneous water heater, a storage water heater or a hot water supply boiler means the ratio of the heat transferred to the water flowing through the water heater to the amount of energy consumed by the water heater as measured during the thermal efficiency test procedure prescribed in this subpart.

Unfired hot water storage tank means a tank used to store water that is heated externally, and that is industrial equipment.

Test Procedures


(a) The Department incorporates by reference the following test procedures into Subpart G of Part 431. The Director of the Federal Register has approved the material listed in paragraph (b) of this section for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Any subsequent amendment to this material by the standard-setting organization will not affect the Department test procedures unless and until the Department amends its test procedures. The Department incorporates the material as it exists on the date of the approval and a notice of any change in the material will be published in the Federal Register.