



# ENERGY STAR® Program Requirements Product Specification for Clothes Washers

## Eligibility Criteria Version 6.0

Note: The definition of basic model was edited in May 2012, to be identical to the DOE definition of basic model that has been incorporated into recent ENERGY STAR appliance specification revisions.

Following is the **Version 6.0** product specification for ENERGY STAR qualified clothes washers. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

1) **Definitions:** Below are the definitions of the relevant terms in this document.

- A. **Residential Clothes Washer:** A consumer product designed to clean clothes, utilizing a water solution of soap and/or detergent and mechanical agitation or other movement, and must be one of the following classes: automatic clothes washers, semi-automatic clothes washers, and other clothes washers.
  - i) **Residential Clothes Washer with Optional Dry Cycle:** A Residential Clothes Washer that has an optional add-on dry cycle, where drying is accomplished through use of electricity or gas as a heat source and forced air circulation; drying cannot be selected independently from a wash cycle.
- B. **Commercial Clothes Washer:** A soft-mounted front-loading or soft-mounted top-loading clothes washer that is defined for use in:
  - (i) Applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries; or
  - (ii) Other commercial applications.
- C. **Combination All-in-One Washer-Dryer:** A consumer product designed to clean and dry fabrics in a single drum, where a separate drying cycle uses electricity or gas as a heat source and forced air circulation.
- D. **Modified Energy Factor:** Modified Energy Factor ("MEF") is the present energy efficiency measure for all clothes washers. MEF is the quotient of the cubic foot (or liter) capacity of the clothes container divided by the total clothes washer energy consumption per cycle, with such energy consumption expressed as the sum of the machine electrical energy consumption, the hot water energy consumption, and the energy required for removal of the remaining moisture in the wash load. The units are cubic feet per kilowatt-hours (kWh) per cycle (ft<sup>3</sup>/kWh/cycle) (or liters per kilowatt-hour per cycle). The higher the value, the more efficient the clothes washer.
- E. **Water Factor:** Water factor ("WF") is the present water efficiency calculation that allows the comparison of clothes washer water consumption independent of clothes washer capacity. The term is expressed as gallons per cycle per cubic foot (or liter per cycle per liter). WF is the quotient of the total weighted per-cycle water consumption divided by the cubic foot (or liter) capacity of the clothes washer. The lower the value, the more efficient the clothes washer.
- F. **Basic Model:** All units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

2) **Scope:**

- A. **Included Products:** Products that meet the definition of a residential clothes washer or commercial clothes washer as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.

B. Excluded Products: Clothes washers with a capacity of less than 1.6 ft<sup>3</sup> and/or are configured in any way other than a front- or top-loading design are not eligible for ENERGY STAR. Combination All-in-One Washer-Dryers and Residential Clothes Washers with an Optional Dry Cycle are not eligible for ENERGY STAR.

3) **Qualification Criteria:**

A. MEF and WF Requirements:

**Table 1: ENERGY STAR Criteria for Clothes Washers**

Residential Clothes Washers	MEF $\geq$ 2.0 WF $\leq$ 6.0
Commercial Clothes Washers	MEF $\geq$ 2.2 WF $\leq$ 4.5

B. Significant Digits and Rounding:

- a. All calculations shall be carried out with directly measured (unrounded) values.
- b. Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.
- c. Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

C. Model Numbers: Model numbers used for ENERGY STAR qualified product submissions shall be consistent with Federal Trade Commission (FTC) and Department of Energy (DOE) submissions.

4) **Test Requirements:**

A. One of the following sampling plans shall be used to test for qualification to ENERGY STAR:

- a. A representative unit shall be selected for testing based on the definition for Basic Model provided in Section 1. above; or
- b. Units shall be selected for testing per the sampling requirements as defined in Table 2:

**Table 2: ENERGY STAR Sampling Requirements for Clothes Washers**

Residential Clothes Washers	10 CFR § 429.20, which references 10 CFR § 429.11
Commercial Clothes Washers	10 CFR § 429.46, which references 10 CFR § 429.11

B. When testing clothes washers, the following test methods shall be used to determine ENERGY STAR qualification:

**Table 3: Test Methods for ENERGY STAR Qualification**

Efficiency Requirement	Test Method Reference
MEF	10 CFR § 430, Subpart B, Appendix J1 <sup>1</sup>
WF	

<sup>1</sup> And in accordance with any applicable DOE issued test procedure guidance, listed here: <http://www1.eere.energy.gov/guidance/default.aspx?pid=2&spid=1>

- 5) **Effective Date:** The ENERGY STAR Clothes Washer specification shall take effect on February 1, 2013. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled.
  
- 6) **Future Criteria Revisions:** ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model.