



Standard Test Method for Litter-Cleaning Effectiveness of Vacuum Cleaners¹

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1. Scope

1.1 This test method covers a laboratory test for determining the relative carpet litter-cleaning effectiveness of household vacuum cleaners when tested under standard conditions.

1.2 This test method is applicable to household types of upright, canister, combination, and stick vacuum cleaners intended for cleaning carpeted floors as a primary or secondary function.

1.3 This test method applies only to the cleaning of litter from carpet, not the removal of embedded dirt. Litter is defined as material that typically clings to the surface of the carpet, such as pet or human hair, thread, and so forth.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

[E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods](#)

[F555 Test Method for Motor Life Evaluation of an Upright Vacuum Cleaner](#)

[F608 Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners](#)

[F655 Specification for Test Carpets and Pads for Vacuum Cleaner Testing](#)

¹ This test method is under the jurisdiction of ASTM Committee F11 on Vacuum Cleaners and is the direct responsibility of Subcommittee F11.21 on Cleanability.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[F884 Test Method for Motor Life Evaluation of a Built-In \(Central Vacuum\) Vacuum Cleaner](#)

[F922 Test Method for Motor Life Evaluation of an Electric Motorized Nozzle](#)

[F1038 Test Method for Motor Life Evaluation of a Canister, Hand-held, Stick, and Utility Type Vacuum Cleaner Without a Driven Agitator](#)

[F1334 Test Method for Determining A-Weighted Sound Power Level of Vacuum Cleaners](#)

[F1409 Test Method for Straight Line Movement of Vacuum Cleaners While Cleaning Carpets](#)

3. Significance and Use

3.1 This test method will provide an indication of the effectiveness of the vacuum cleaner in removing litter from carpet. No data exist to determine if the cleaning effectiveness in the laboratory will be the same as in home cleaning; however, in most cases, a vacuum cleaner that cleans well in the laboratory will clean well in a home.

3.2 To provide a uniform basis for measuring the performance described in 1.1, standardized test carpet and standardized test litter are used.

4. Apparatus

4.1 *LED Timer Bar*, or other type of equipment capable of establishing the specified rate of movement of the cleaner.

4.2 *Voltmeter*, to measure input voltage to the cleaner and provide measurements accurate to within $\pm 1\%$.

4.3 *Voltage-Regulator System*, to control the input voltage to the cleaner. The regulator shall be capable of maintaining $120 \pm 1\%$ V root mean square (RMS), 60 Hz, with a waveform that is essentially sinusoidal with 3% maximum harmonic distortion for the duration of the test.

4.4 *Test Carpets*, Wilton Wool; specification and source to be added.

4.5 *Test Padding*, Sponge rubber type of waffle construction as described in Specification [F655](#).

4.6 *Psychrometer*, for measuring temperature and humidity.

4.7 *Rake*, for lightly embedding the litter into the test carpet. See [Fig. 1](#) and [Fig. 2](#).

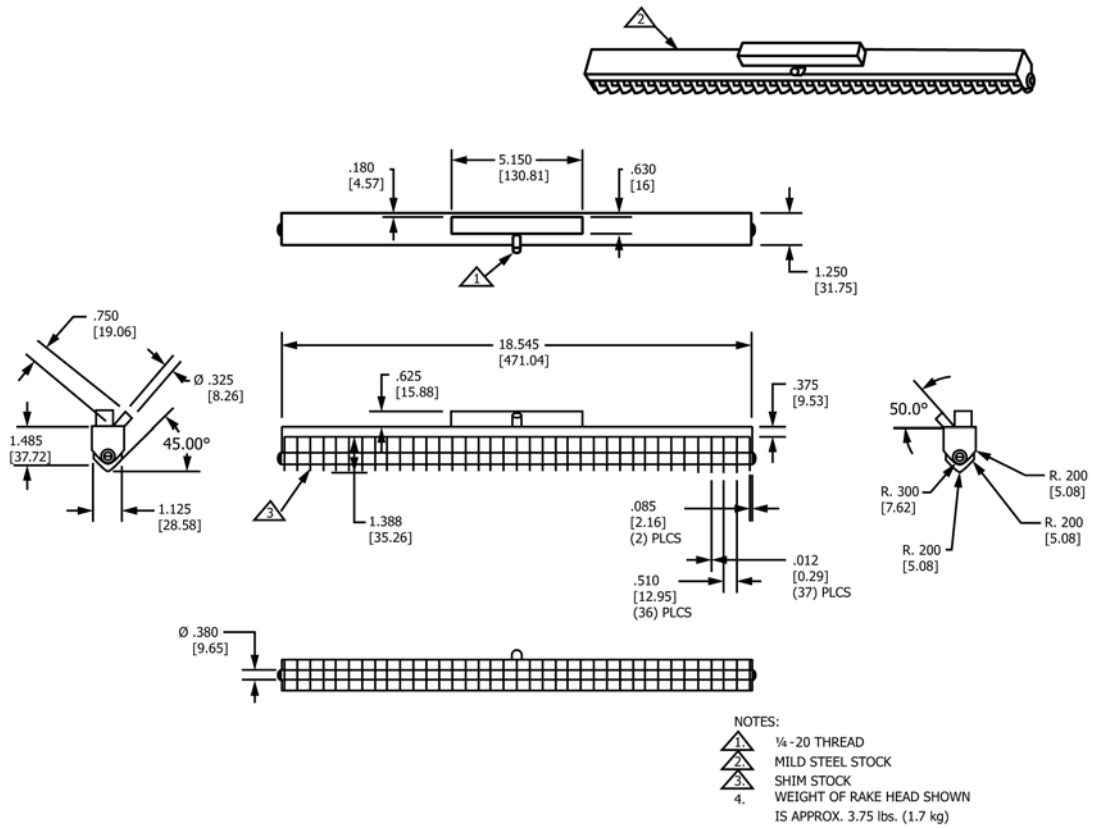
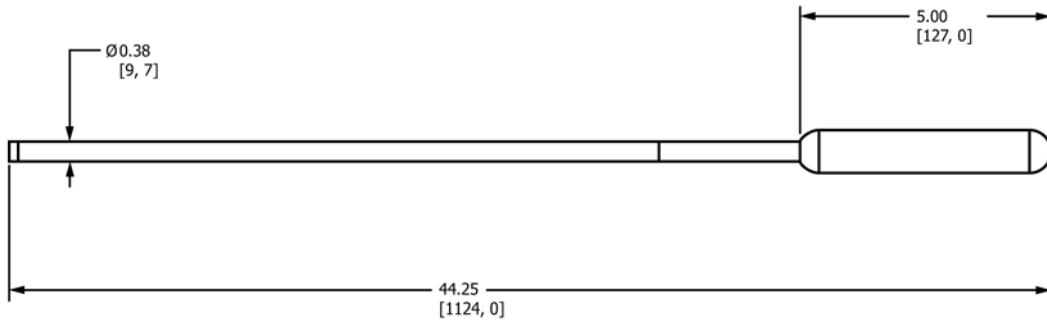


FIG. 1 Rake Head



- NOTES:
1. HANDLE CAN BE SEGMENTED.
 2. TOTAL HANDLE WEIGHT APPROX. 1.4 lbs> (.63 kg)

FIG. 2 Rake Handle

4.8 *Supporting Surface*—A flat surface consisting of a piece of ¾-in. (19-mm) thick exterior grade plywood with the “A” surface upward to support the test carpet and pad. The test carpet and pad may be fastened to the supporting surface, but only the four corners by any acceptable means.

4.9 *Test Area Template*—Cardboard or plastic sheet or equivalent with a 7- by 7-in. (178- by 178-mm) square opening. The opening defines the litter area and is to be centered within the 18-in. (457-mm) long cleaning stroke.