

World Coffee Events

Espresso Grinder Testing and Evaluation

2017

Introduction

The purpose of espresso grinder testing is to ascertain that candidate espresso grinders meet minimum performance criteria and to qualitatively assess candidate's use as competition espresso grinders within the system of world, national, and regional competitions, including the World Barista Championship, World Latte Art Championship, and World Coffee in Good Spirits Championship. This document provides information related to the type of machine being solicited for WCE use, installation in the testing environment, required manufacturer support during the tests, and information about the tests themselves. An ad-hoc committee convened by the WCE Board of Directors performs this testing.

Manufacturer Requirements and Responsibilities

Installation

Manufacturers will provide 3 testing machines of the same model with identical burr sets in each for evaluation.

The manufacturer is responsible for installing the espresso grinder prior to the tests, and ensuring that the grinder performs to the manufacturer's satisfaction.

Operation, Maintenance, and Repair

The manufacturer is responsible for maintenance and repair of its espresso grinder during the tests.

Machine Removal

The manufacturer is responsible for removal of the grinder after testing is concluded.

Access to Burr Chamber

The manufacturer's designated service personnel shall provide access to the burr chamber of the espresso grinder as requested by members of the testing committee.

Electrical

The electrical supply at the test site is 230V 50Hz and grinders must be capable of operating using this power source.

Espresso Grinder Requirements

1. An espresso grinder should be an electro-mechanically driven device capable of the even comminution of roasted coffee.
2. The espresso grinder must be able to easily and predictably adjust so that the resulting espresso fits an accepted brewing parameter space that fits the current competition style.
3. The espresso grinder must produce a consistent dose (if electronic dosing) and particle size/distribution for the number of grind cycles and over the required duty cycles experienced

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during competitions. If the required grinder settings change during this period of use, then the grinder is unacceptable for competition.

4. Grind setting adjustment can be by mechanical or electrical means and must be easily accessible.
5. The grinder must have a means of feeding beans into the grind chamber without spillage (e.g. a hopper). A hopper should be able to contain without spillage a minimum of 500 grams of coffee.
6. The grinder must have a grind exit chute that is positioned such that any portafilter can be placed and or held for exiting coffee to be dispensed directly into the basket of the portafilter.
7. The grinder must dispense 20 grams of ground coffee in a maximum of 12 seconds.
8. The effect of a grinds particle size adjustment shall be fully realized after no more than two 20 gm doses have been dispensed. This will be assessed through qualitative testing.
9. The grinder should not impart sufficient heat to the coffee during grinding to create a discernible taste defect in the final beverage. This will be assessed through qualitative testing.

Testing and Evaluation

Electronic Dose Consistency Testing

From empty, 500g of coffee will be placed in the grinder. After adjustment per 3.5, 10 doses will be dispensed and weighed. This will be repeated on submitted espresso grinders 2 and 3 under identical parameters as set on espresso grinder #1.

Particle Size Analysis and Consistency Testing

If available to the committee at the time of testing, particle diameter from approximately 1-1000 μ m will be measured using a laser diffraction particle size analyzer and data collected for information gathering purposes and future integration into the Espresso Grinder Testing Evaluation and Requirements documents. Collection of data may include particle diameter (μ m) versus differential volume (%) and or cumulative volume (%), Volume Statistics, such as volume, mean, median, mean/median ratio, mode, standard deviation, and variance from dose-to-dose versus time and other information that may be pertinent to future analysis and testing.

Grind Speed Testing

Espresso grinders will be adjusted to a grinds particle size that will produce espresso with extraction yield between 15-25%. The elapsed time for grinding 20 grams of coffee will be measured and may not exceed 12 seconds.

Grind Retention Testing

Once finished the collar of each espresso grinder will be removed and the remaining ground coffee surrounding the burrs will be weighed to determine grind retention.

Quantitative Testing

A series of espressos with extraction yield adjusted to nominally 20% will be brewed from coffee grinds produced by the candidate grinders, as measured by a coffee refractometer. Extraction yields from arbitrarily selected samples will be recorded, and the grinders will be

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evaluated for apparent correlation between extraction yield and number of grinding cycles, and extraction yield and grinder duty cycle.

Qualitative Testing

Teams assembled from members of the WCE Qualified Testing Committee will evaluate espresso grinders. This testing will focus on, but is not limited to: espresso grinder usability with a range of portafilters, practicality, ergonomics, appearance, and coffee beverage evaluation. Testers shall qualitatively score the espresso grinders in each category, based on their personal judgment, and the judgment of the test team(s).

Disqualification during Qualitative Testing

The testing committee may disqualify a candidate espresso grinder that exhibits significant technical issues that would, in the opinion of the testing committee, make the espresso grinder a poor choice for WCE competitions use. Such issues might include but are not limited to markedly defective beverage quality due to heat transfer or grind profile, grind setting/dosing drift/inconsistencies, and safety or usability issues not detected in quantitative testing.

Ranking of Results

All espresso grinders passing the quantitative requirements and not disqualified during qualitative testing are eligible for WCE sponsorship consideration. The score applied during qualitative testing will be used to rank eligible grinders for desirability as the next WCE competition espresso grinder. This ranking is the opinion of the testing committee as to the fitness for competition use and does not select the next WCE competition espresso grinder.

Confidentiality of Results

Results may be discussed among members of the testing committee, but they may not be discussed publicly. Manufacturers are entitled to a copy of their respective results only. They are free to discuss them publicly.