



Meet *High Maintenance* columnists and equipment specialists Alex and Double J at the Global Specialty Coffee Expo in Seattle! From 1–3 p.m. on Saturday, April 22, they will be answering equipment questions in a guest appearance at Barista Magazine's booth, #420.

SPRING HAS FINALLY SPRUNG here in the beautiful Pacific Northwest, though for us that means another few months of rain with a little bit of sunshine thrown in just to get our hopes up. It also means more people out and about looking to socialize after months of winter hibernation, and much of that catching up transpires over great coffee at a local café. So café owners: Did you get that deep spring cleaning and maintenance done on your equipment yet? Good. We knew we could count on you guys!

How can I get my grinder to dose more consistently?

Well, I'm going to assume your grinder is using time as the parameter you adjust to control the dose, rather than weight. Espresso grinders that use time to portion-control the dose (which we want to be a specific weight like, say 20 grams) are a little bit tricky to keep accurate 100 percent of the time. This is because there are a number of factors playing into how much coffee can get through your burrs in a given amount of time. A few of them are easily controllable. Sharp burrs are going to have a much easier time pushing coffee through than dull ones generally. Additionally, though, as the burrs get dull, you need to tighten your grind up more and more to get the shots to extract in the perfect window of time while pulling them. When you tighten up the grind, you are putting the burrs closer and closer together, and you can therefore fit less and

less coffee between them, resulting in it taking longer to grind that 20 grams than it did when the burrs were fresh and sharp. Dull burrs also tend to hold back more coffee in the grinding chamber, and then sporadically release some of that held-back coffee. When that happens, you would definitely notice a wild dose inconsistency from one shot to the next (e.g., you got 20 grams the last three shots you pulled, and 24 grams this time). You can easily avoid this scenario by changing your burrs on a proper schedule. Your local tech can help you determine how many pounds or kilos of coffee your particular burrs are rated for, and when they should be changed based on your volume.

Another factor typically out of the barista's control is the coffee itself. The roaster may change the beans that go into a blend, or the time they release it from the roaster to achieve a specific flavor profile, which can alter the size of the beans, the density—any number of things. Changes at the roaster level can also effect how much coffee gets through the burrs in a given amount of time. This dynamic is unavoidable, and you just have to reset and roll with it. Someday soon we may have more available espresso grinders that dose based on weight (there are a few out there now, so be on the lookout). Ultimately, if weight is what we want to measure, then we need weight to be the way the grinder is measuring, rather than measuring by time.

—Alex

The flow rate of water is different across my groups. This will obviously change my extractions, so how can I maintain consistency?

This is a service call we get all the time at Black Rabbit. The first thing we should cover is how to do a proper flow rate test. I always carry a small measuring cup in my tool bag that is marked in milliliters. Drop the dispersion screw, screen, and block on all the group heads. (Be careful here. Some machines don't shoot the water straight down. It may come out at an angle. If this is the case with your machine, leave the screen and block in.) Place your measuring cup under the first group head, then hit the brew switch and start a timer

or adaptors if the machine has them. Of course, good cleaning habits and replacing your dispersion screens and filter baskets regularly help a lot, too!

—Double J

My grinder is producing coffee that is wildly inconsistent in terms of particle size. What can I do to help fix this?

I figure I'll tackle another grinder question since we get a lot of them, and grinders are fun, mysterious, and often the unsung hero/workhorse in the café! Particle distribution, as the kids call it, is something that is hotly debated among coffee pros, from baristas to technicians to grinder manufacturers. Everyone has an opinion on

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simultaneously. I usually turn the group off and stop the timer when the water reaches 200 ml. Take note of what the time is and do the same thing on the next group head over. We usually run that test 4-5 times on each group head, hoping each group will hit that 200 ml line with no more than a half a second or so difference between them. We typically like to recommend a "front-end rebuild" at least once every two years, which means replacing all the valve plungers and flow restrictors (a.k.a. gicleurs or group jets), and replacing the impellers on the flow meters if your machine has them. Sometimes we'll also replace the banjo tubes

what's right and wrong. One thing almost everyone can agree on, however, is this: If it is "wildly inconsistent," then something is definitely wrong. Depending on the type of grinder and the brew method you're going for, some inconsistent particle size can be beneficial as you extract different particle sizes at different rates and you can actually miss out on some good flavor or aromatic compounds in there if every single particle is identical in size and shape. When we're talking espresso, though, any inconsistency in particle size would be tough to distinguish with the naked eye, so if you see massively different particle sizes in an espresso grind, you can bet

something is not right with your grinder. It could be that your burrs are dull (this is a common cause of most of the problems in your grinder; if you haven't noticed!) or that when they were installed, they weren't balanced properly. If that's the case, you—or better yet, your friendly neighborhood service technician—may need to disassemble, clean, and reseal the burrs. If they're not perfectly parallel with each other, you'll definitely get a noticeably inconsistent grind.

—Alex

How can I control water flow of the espresso machine? How can we measure?

Since Alex took two grinder questions, I'll take another flow rate question! I'm sure some of you have noticed that the brew pressure gauge on your espresso machine might move around a little bit when you're not pulling a shot. That's because it's reading the downstream line pressure before the pump is engaged. It's a great idea to make that pressure as consistent as possible to help prevent flow rate issues, and it'll give you a more consistent pre-infusion across the group heads. I like to install small accumulator tanks that have a pressurized bladder, and sometimes

a pressure regulator with a gauge to help hold the line pressure around 3 or 4 bar of pressure (44 to 58 psi). The accumulator helps with keeping things like water hammer at bay, and the regulator keeps the pressure where you want it. When adding these types of items, it's important to remember that pressure and flow rate are not the same thing. Pressure regulators can often reduce flow rate, so if you add one, you'll want to make sure that your flow rate meets your equipment's requirements. You can test the flow rate by disconnecting the machine's supply line and observing how long it takes to hit the gallon mark on a graduated cylinder. If it takes 30 seconds, your flow rate is 2 gallons per minute (GPM). The only way to measure pressure is by installing a gauge somewhere in line with everything. It can get tricky balancing pressure and flow rate, which is why I would recommend having your coffee tech help out with this one. **b**

—Double J

