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## On The Table #12

### Innovation: The Dosing Hopper - A Work in Progress

Dear cyber reader, The dosing hopper pictured below is a mythic beast around the little urban bee-hive that is Espresso Vivace. Often talked of in enthusiastic bursts over the last four years, but like the Susquatch, seldom seen.



**Fig. 1:** A mythic beast around the little urban bee-hive that is Espresso Vivace, but like the Susquatch, seldom seen.

### The Features

Let me tell you, the Italian Dosing Hopper is tough to improve on.

What's to improve you may justifiably ask? We grind coffee per order because we have seen this is essential to preserve all coffees delicate aromas, and offer the most hunky crema possible. So, we have to guess at how long to run the grinder to get the exact quantity we need. Then we wear out the hopper flapping the handle repeatedly to get all the ground coffee out. It is noisy and inefficient.

But, perhaps most important of all is that it is mixing with the air as we grind and get it out of the hopper. This hopper is an air/coffee mixing machine.

This does not affect us in regards to oxidation, that is coffee going stale, because we use it all within seconds. Our issue is extraction rate. Any coffee left in the dosing hopper after packing a shot is exchanging moisture with the atmosphere readily because ground coffee is very hygroscopic. ([Review grinding factors](#) if this is unclear.)

Thus it presents a different resistance to the brewing water than the freshly ground coffee. It drives the staff nuts, as they constantly change the grind to keep a 25 to 30 second elapsed time for brewing. We all end up wasting coffee, pitching out the little bit left over as we grind the next shot. And lo...it is written, THOU SHALT NOT WASTE COFFEE. We know this to be true.

So for four or five years I have been battling with machinists and plastics fabricators, to produce a series of proto-types the latest of which is pictured here.

## Design Features

We wanted to seal the chamber between the burrs and the porta-filter to prevent any air (and moisture) from mixing with the ground coffee. The theory is that this would stabilize the extraction rate regardless of changing humidity etc..

We wanted to measure the ground coffee precisely with the use of gate-slides. (Pictured in **Fig. 2** with white handles on them.) The stainless steel gates would slice off the ideal amount as it tumbled out of the grinder into the 2" ID acrylic tube. The barista just shuts the bottom slide, turns on the grinder until coffee piles up past the top slide, then they close the top and open the bottom to deliver the precise amount, measured by volume.

We eliminated moving parts and repetitive, wasted motions by the baristas.



**Fig. 2:** Are there any engineers working on dosing hoppers for grinding by the cup that wish to start a dialogue? If so please E-Mail me at [vivace@accessone.com](mailto:vivace@accessone.com) if you wish to pursue this with me.



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### Problems

Ground fresh coffee is interesting stuff. It is sticky and oily and marvelous. We first encountered adhesion in the chute. The coffee would not come down a 45 degree angle if the stainless steel was a matt finish. We went to a mirror finished stainless steel and solved this problem.

We now are having problems with clumping. As the coffee, all heavy with flavor oils, tumbles into our little chute it is clumping. This is leading to different densities in the brewing basket, and uneven extraction is the result.

### Solutions ?

I suspected the mixing action of the Italian style doser might prove to be important to a uniform density in the brewing basket. It appears that this is true. I may try a rotating paddle wheel assembly, mounted just under the bottom slide to break up any clumps as the coffee is released into the basket. But, it's getting just a bit Rube-Goldberg like don't you think?

So I am asking you dear cyber readers to share knowledge. Are their

any engineers working on dosing hoppers for grinding by the cup that wish to start a dialogue? If so please E-Mail me at [vivace@accessone.com](mailto:vivace@accessone.com) if you wish to pursue this with me.

Next month more stuff about espresso coffee.

Ciao for now!

**END**

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