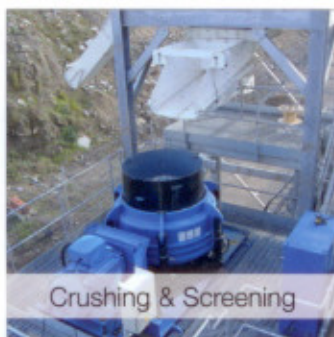


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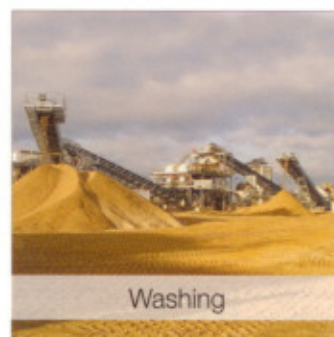
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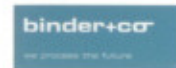
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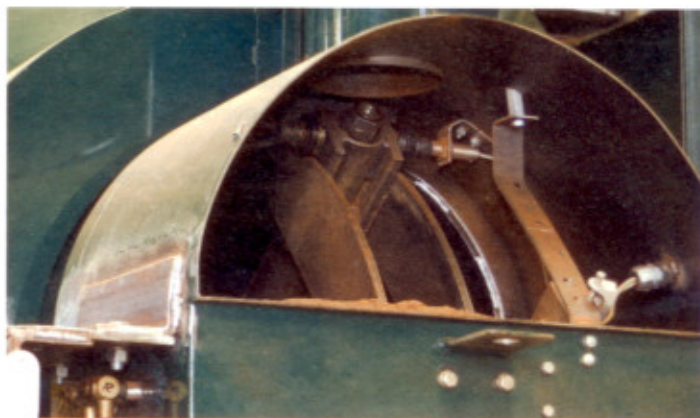
The perfect blend

Iced tea product demands fast, gentle blending, says Munson Machinery

While S&D Coffee of Concord, North Carolina produces upwards of 45.4 million kg of coffee annually, it also handles a respectable volume of tea. A family business since 1927, the company provides coffees, teas and juices to many restaurants, hotels, offices and vending system suppliers. Hot tea is actually co-packaged for the company, but iced tea product — not instant, but the type that involves fresh brewing — is blended in-house. S&D, in fact, supplies the iced tea product used at thousands of McDonald's restaurants, as well as providing for other restaurant chains. Over the last several years, S&D were producing 4.5 million kg of iced tea per year, requiring a three-shift operation.

Iced tea product can include up to 10 different, carefully selected components, according to S&D engineering manager Carl Teten. Besides having a flavour that holds up through brewing and chilling, an iced tea blend must arrive before the restaurant customer with minimal cloudiness. And nothing, says Teten, "blends our tea as well as our rotary mixer."

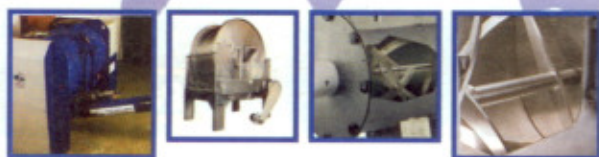
For about 10 years, S&D has been using a 700-TS-110-MS



rotary batch mixer, made by Munson Machinery, to prepare their iced tea product, running batches of 908-1000 kg at a time. Since cut tea needs to be handled minimally (or else risk producing tea powder), it is to great advantage that the design of the Munson machine permits complete blending in just 2 to 3 minutes. S&D's present production schedule calls for preparing batches of one blend over a four-day period, then switching to another blend. In between blends, the machine is cleaned of stray tealeaves and given an inspection.

The Munson rotary mixer is a low profile machine with a stationary inlet and an opposing stationary discharge, with a drum rotating on a horizontal axis in between. As the drum rotates, materials are charged via the inlet chute, and then internal mixing flights tumble and fold the batch materials with a multi-directional action. The gravity-assisted process quickly produces homogeneous blending while imparting minimal energy and

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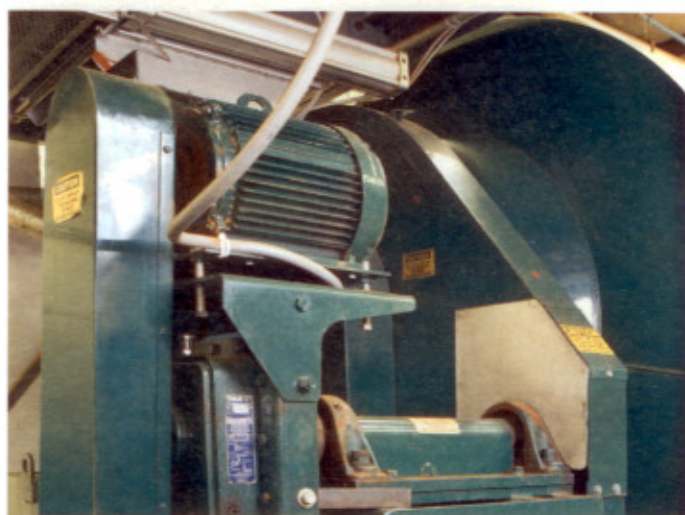


ABOVE: Each storage vessel holds a specific type of tea that will be used in a blend produced by S&D Coffee

intensity to the product. The blending action also directs the mix towards the discharge gate. When the blend is complete (typically no more than 2 minutes with most materials), the discharge gate pivots into the machine, where cone lifters gently direct the material out of the machine through the discharge spout. In short order, virtually 100% of product is discharged.

Continuous rotation throughout the entire blending cycle produces random dynamics that assures all materials remain in motion, preventing segregation in batches of varying material densities. The tumbling flow of material from the lifters and baffles creates an ideal environment for spray addition, coloring, coating, agglomerating and encapsulating (the rotary mixer at S&D was equipped with a spray bar, but the company have not yet used it, as their tea blends are produced without added flavourings). Additionally, the tumble/fold blending action also contributes to long equipment life without sacrifice of blend quality.

Tea mixing, typically 320-400 kg/cu m, is a light load for the 700-TS-110, which is designed for batch volumes of up to 3 kiloliters (total volume 6 kiloliters). A low kW motor rotates the mixer, via a small, efficient helical gear reduction transmission



ABOVE: A low kW motor rotates the mixer, via a helical gear reduction transmission and a final chain-and-sprocket drive. The drum is suspended on two trunnion rings riding on alloy roller assemblies. The machine has just one seal, located at the inlet and mounted externally for rapid removal and replacement, to contain dust.



From this station, a technician controls the proportions for each batch of tea produced

and a final chain-and-sprocket drive. The drum is suspended on two trunnion rings riding on alloy roller assemblies. The machine has just one seal, located at the inlet and mounted externally for rapid removal and replacement, to contain dust.

While 4.5 million kg of iced tea product (about 11,200 kiloliters) per year may suggest the satisfying of a lot of thirsts, S&D Coffee are intent on raising production still higher. Teten, who has worked at two other coffee production houses prior to his present position, first examined the possibility of adding a second Munson mixer. What was found, however, was that by moving the original machine to a larger area of the factory, then re-sizing the support systems that load and unload the mixer, S&D will be able to produce 4.5 million kg of product per year in each shift, effectively tripling production.

"I have no doubt that this machine will still be running 10 years from now," he said.

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