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See page 105

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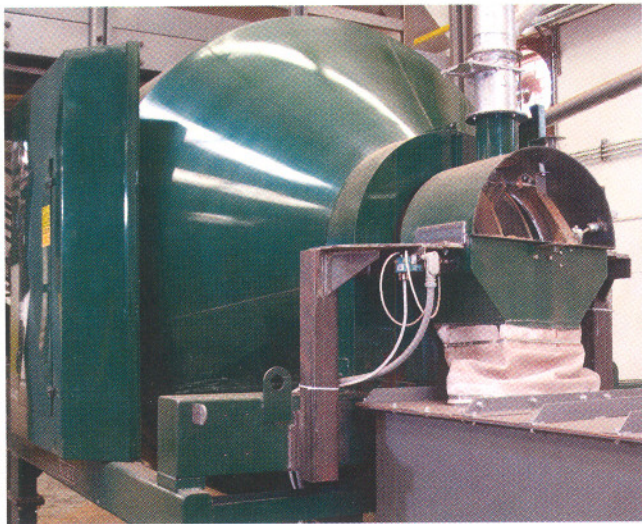
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Gently tossing the tea leaves

While S&D Coffee of Concord, NC produces almost 100 million lbs. of coffee annually, it also handles a respectable volume of dry, cut tea blends. A family business, the company has provided coffees, teas and juices to many restaurants, hotels, offices and vending system suppliers since 1927. S&D supplies the iced tea used at all McDonald's restaurants, as well as national chains such as Applebee's and The Olive Garden. Over the last several years, S&D has produced 10 million lbs. of iced tea per year, requiring a three-shift operation.

Iced tea can include up to 10 different, carefully selected components, according to S&D Engineering Manager Carl Teten. Besides having a flavor that holds up through brewing and chilling, an iced tea blend must have minimal cloudiness, or restaurant customers will not reorder. And nothing, says Teten, "blends our tea as well as our rotary mixer."

Ten years ago, Teten searched for a rotary mixer to prepare S&D's iced tea product. He wanted to run batches of 2,000 to 2,200 lbs. at a time. Since cut tea needs to be handled minimally (or else risk producing tea powder), the mixer had to complete blending in just two to three minutes. Teten chose a Model 700-TS-110-MS rotary batch mixer from Munson Machinery Company, Utica, NY. S&D's present production schedule calls



Finished tea blend exits the mixer. Since batch material is directed toward a discharge gate as the mixer rotates, evacuation is complete. (The hatch appears open by an inset photo to reveal the discharge gate.) Source: Munson Machinery.

Rotary mixer combines dry leaves without turning them into powder.

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 tea leaves and inspected.

The mixer is a low-profile machine with a stationary inlet and an opposing stationary discharge, and has 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 materials with a multi-directional action. The gravity-assisted process quickly produces homogeneous blending while imparting minimal energy and intensity to the product. The blending action also directs the mix toward the discharge gate. When the blend is complete (typically no more than two 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.

Tea mixing, typically 20 to 25 lbs. per cubic foot, is a light load for the mixer, which is designed for batch volumes of up to 110 cubic feet (total volume 218 cubic feet). A low-horsepower motor rotates the mixer, via a small, efficient 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 one seal, located at the inlet and mounted externally for rapid removal.

S&D Coffee is intent on raising production still higher than the 10 million lbs. of iced tea (about 400,000 cubic feet) it produces per year. Teten examined the possibility of adding a second mixer, but found by moving the original machine to a larger area of the factory and re-sizing the support systems that load and unload the mixer, S&D will be able to produce 10 million lbs. 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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