AUSTRALIAN
# BULK HANDLING REVIEW

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No matter how long your train is, we'll weigh it. pg 56

MERIDIAN ENGINEERS PTY LTD

# Consistent tea blends with Munson mixer

A major US tea importer has achieved greater consistency using a rotary batch mixer from Munson.

*After passing through a vibrating screen (L), tea is conveyed to the 3.9 cu m rotary batch mixer.*

Founded in 1912, Henry P. Thomson, Inc., based in New Jersey, is one of the largest tea importers in the United States. Although it began on Wall Street (centre of the tea trade back then), HPT now warehouses its products in Augusta, Georgia and sells primarily to tea packagers, who sell to restaurants, food chains and supermarkets in southern states.

"Many coffee roasters based in the South have complementary iced tea lines," explains Eugene Amici, president, Henry P. Thomson. "During the 1920s and 30s, HPT became the tea department for those coffee roasters, who have scaled up nationally since that time."

"Approximately 85 percent of HPT blends are for iced tea, which Americans increasingly choose as an alternative to carbonated beverages with less or no sugar," says John Smith, VP and managing director. "Iced tea is consumed in restaurants, made at home, and bought in the refrigerated sections of grocery stores and convenience stores," he adds.

A key to HPT's 100-year success is maintaining tea blend consistency, a difficult task due to sack-to-sack variations in imported tea. For example, says Smith: "We receive 400 sacks of an African tea, and from sack to sack the tea may be lighter or darker in colour or vary in quality due to seasonal variations. Yet the customer expects blends that have no variation in quality from batch to batch."

In a bid for consistency, HTP uses a Munson 3.9 cu m capacity rotary batch mixer.

## Evolution of blending at HPT

HPT previously outsourced its blending and packaging to a logistics company in New Orleans, but after the devastation of Hurricane Katrina in 2005, moved its blending, packaging and distribution services to an Augusta, Georgia warehouse owned and operated by RBW Logistics.

HPT first tried a ribbon blender, but found it "destroyed the tea" due to the ribbon blender's heavy action and high-shear rotation of the agitator, explains Smith.

Next, HPT purchased a custom-built mixer, but due to design and construction shortcomings, "It failed to reduce costs as expected," says Smith.

HPT replaced that machine with the rotary batch mixer for several reasons, according to Smith: The forward section of the previous mixer had to be tilted upward to promote evacuation from the discharge port, while the Munson machine remains level and discharges fully, eliminating wasted product and allowing rapid cleaning.

Also, the previous machine had a topside shaft that bore a large amount of weight, while the Munson is supported by two external trunnion rings riding on

*Internal flights lift and direct blended tea to the discharge gate.*

*The rotary batch mixer blends 726 to 1180 kg batches and runs all day, seven days per week.*

heavy-duty roller assemblies, eliminating the need for an internal shaft with bearings and seals that could contaminate material and prevent thorough cleaning.

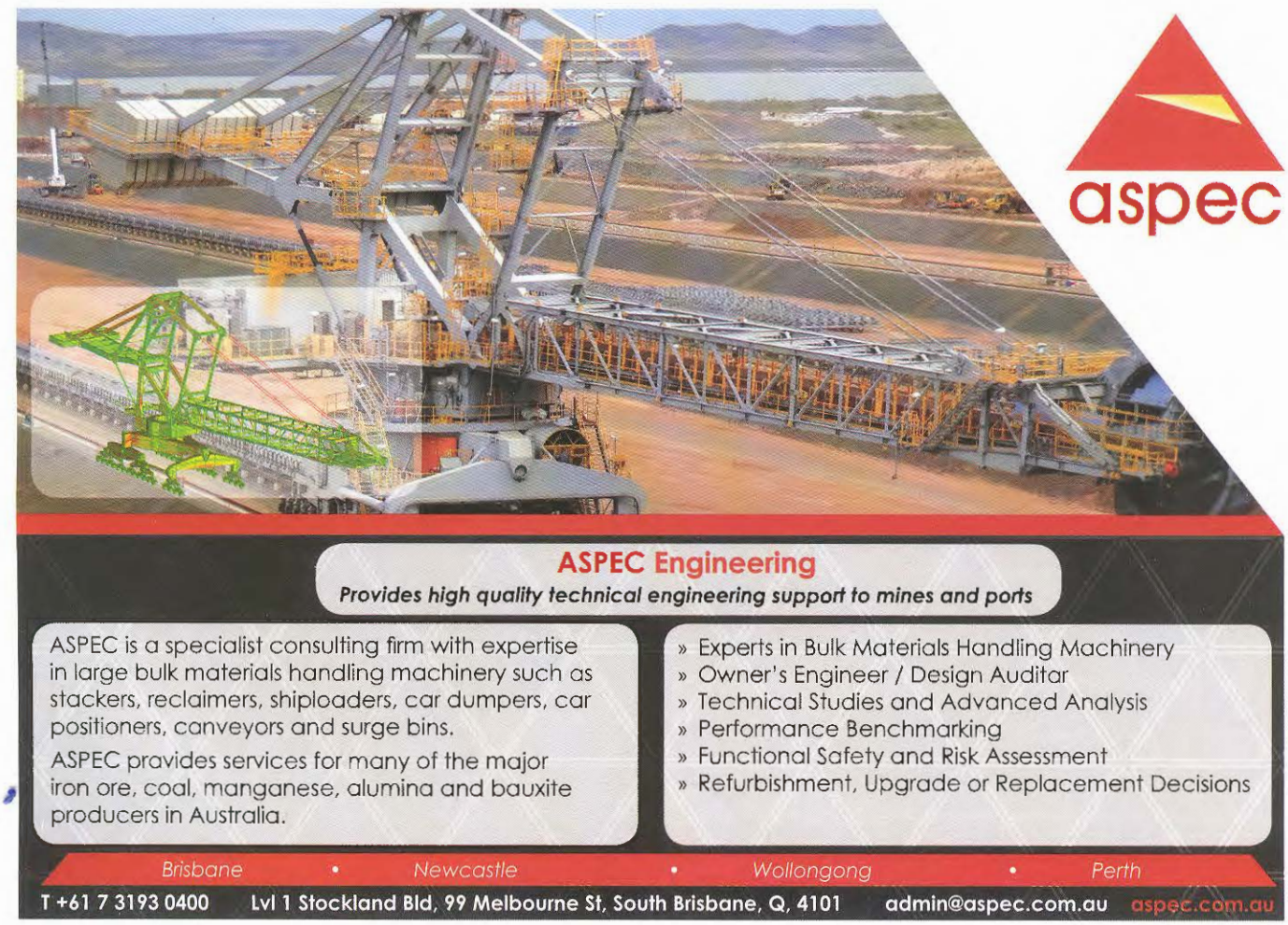
"The mixer occupies half the amount of space required by the previous mixer, is more efficient, and can mix larger batches," adds Eugene Amici.

While the prior mixer processed a maximum of 816 kg/batch, the rotary batch mixer can blend between 726 to 1180 kg/batch. "The Munson machine can comfortably mix our daily output of 18,160 kg/day, and can push to 22,680 kg/day, if needed," says Smith. It runs every day, all day.

## Tea blends require gentle, rapid mixing

Most blends consist of four to six teas, which HPT's suppliers process using either of two methods. One is a rolling process that twists the leaves, breaking them into sizes from 6.4 to 3.2 mm to powder. The other is a cut-tear-curl (CTC) approach that produces smaller, more uniform particles yielding more intense flavour and colour.

At the warehouse, tea is received from suppliers in 41 to 64 kg sacks, which are opened by dropping them onto serrated



Despite sack-to-sack variations in imported tea, HTP relies on the Munson mixer to deliver consistent quality.

Blended tea is packaged in sacks for shipment to customers.

teeth positioned above a vibrating screen, which removes oversize objects. A conveyor, outfitted with magnets to remove any metallic particles, transports the tea into the mixer.

The stainless steel rotary batch mixer uses a gravity-driven mixing process in which internal mixing flights and lifters create a gentle four-way mixing action – tumble, turn, cut and fold – to produce a 100 percent uniform batch in one to three minutes, while imparting minimal energy to the material. The unit mixes continuously during loading through its stationary inlet, and discharges through its stationary outlet.

Observes Amici, "Everyone in the tea industry says Munson is the mixer of choice for its gentle mixing and other features."

Internal flights lift and direct blended product to the discharge gate, evacuating the rotating mixing drum, which is free of dead spots and shaft seals that could trap materials.

The blended tea is conveyed to a packaging station where a storage vessel holds one batch. While that batch is being filled into 40 to 1043 kg bulk bags or 48 kg sacks, the next batch is being mixed.

Today some 70 percent of HPT's custom blends are purchased by restaurants, food chains, supermarkets and other smaller resellers. "To tea packers both large and small, our blending quality stands as one of HPT's core values," says Amici.

Munson is represented in Australia by iBulk of Dandenong South in Victoria. ■

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# Siemens launches planetary gear units

Siemens has widened its portfolio of planetary gear units with the Planurex 3, available in ten sizes, with a torque range from 1,700 to 5,450 kNm.

This raises the highest torque in the standard modular system from the previous 2,600 kNm up to 5,450 kNm. The size grading is harmonized to reduce the jump in power ratings between different sizes.

According to Siemens' publicity, "This makes a suitable torque and a suitable transmission ratio available for almost every application. The gear units also have the highest efficiency in their class. This has been achieved by increasing the torque density (Nm/kg) by an average of 17.2 percent in comparison to the previous series.

"A compact design enables space-saving, high transmission ratios to be achieved. This not only reduces the weight, but also the stress on the gear unit and application. Planurex 3 is part of an Integrated Drive System (IDS), which is available as a complete solution, comprising motor, gear unit and coupling, combined with an oil supply system."

The Flender Planurex series 3 replaces the Planurex 2 planetary gear unit series, initially in the XL range up to 5,450 kNm.

Planetary gear units are primarily installed where high output ranges are required in limited space. They are typically used as roller press and central drives for tube mills in mines and cement plants. ■

*Contact: www.siemens.com/Planurex3*

The Planurex 3 planetary gear unit series is available in ten sizes, and Siemens claims the highest efficiency in its class. The new series replaces the previous Planurex 2, initially in the XL range up to 5,450 kNm.