TEA & COFFEE
TRADE JOURNAL
THE INTERNATIONAL & TRUSTED RESOURCE
FOR THE TEA & COFFEE INDUSTRIES SINCE 1901
July/August 2022
www.teaandcoffee.net

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Aussie Coffee Processor Boosts Capacity & Improves Quality by Switching Mixers

When Pablo & Rusty's Coffee Roasters needed to scale up its production, it installed a rotary batch mixer from Munson Machinery.

By Aubrye McDonagh Leigh

All images courtesy of Munson Machinery Co Inc unless noted

Abdullah Ramay, CEO, Pablo & Rusty's Coffee Roasters

The 700-TS-75-MS Rotary Batch Mixer has a gentle four-way mixing action that eliminates or minimises breakage of the beans.

Pablo & Rusty's Coffee Roasters began in 2003 in Sydney, Australia as an homage to its founders, brothers-in-law Peter and Russel. The firm started with a small roastery that supplied the company's two cafés and a small but rapidly growing number of loyal customers. Demand grew quickly, so Pablo & Rusty's moved its roastery into a larger space in Sydney. In addition to operating cafés in Sydney and Brisbane, it wholesales to partner cafés and sells direct to consumers via online sales.

In Australia, the coffee and café culture favours espresso-style coffees, which are typically mixed with milk. That preference is a key factor in how Pablo & Rusty's selects, roasts and blends its beans, said CEO Abdullah Ramay. The roaster uses multiple origins to give its coffee a more balanced taste and which can cut through the milk. Each roasting cycle is adjusted to suit the beans' profiles, and the beans are blended after roasting.

Pablo & Rusty's had been blending the beans on a circular tray blender in which spokes, or arms, extending from a central hub agitated the beans. With a capacity of 551 lb (250 kg) and typical cycles of 10 to 15 minutes, output was limited. More critically, the action of the arms pushing through stationary beans caused breakage. "The blending tray was becoming a bit of a bottleneck," Ramay said, "but most important to us was reducing breakage and improving quality. We also wanted [machinery that] was more sustainable in terms of power."

Beans from the roaster rest on a cooling tray before entering the 75 cu ft capacity Rotary Batch Mixer.

Complete discharge eliminates waste, prevents cross-contamination, and allows rapid cleaning.

The solution was to switch from a blending tray to a rotary batch mixer, which tumbles, instead of agitates, the beans.

Pablo & Rusty's chose a rotary batch mixer Munson Machinery because "it had a product that offered what we were after. Their value proposition was good, and their logistics, delivery and after-sale support were great," Ramay explained.

Established in 1823, Utica, New York-based Munson Machinery Co Inc, is a leader in mixers, blenders and size reduction equipment for bulk solids materials. Munson offers 17 high-performance equipment lines, each with numerous models to meet specialised requirements in the chemical, pharmaceutical, nutritional, food, coffee/tea, refractories, powder metal, and other industries.

Pablo & Rusty's installed Munson Machinery's 700-TS-75-MS rotary batch mixer in 2018. This model is equipped with a horizontally oriented mixing vessel that rotates on external trunnion rings at both ends, obviating internal shafts and bearings.

Noting that Pablo & Rusty's previously used a circular tray blender with limited capacity and output and, more critically, damaged the beans, Stephen J Knauth, marketing & technical manager, Munson Machinery, explained that the rotary batch mixer, which tumbles rather than agitates, has a gentle four-way mixing action: tumble, turn, cut, fold, which eliminates or minimises breakage of the beans, while achieving batch uniformity in three to five minutes. ⊳

Image courtesy of Pablo & Rusty's Coffee Roasters

Pablo & Rusty's Porter Street, Pioneer and Trailblazer blends feature coffee beans from three different origins.

Ramay reiterated that gentle handling and less bean breakage were the prime reasons for the model 700-TS-75-MS mixer, adding that "the second was its capacity of 75 cu ft or 1874 lb (2.1 m^3 or 850 kg), being able to blend four times more in a batch."

Greater Efficiency and Sustainability

In operation, the beans rest for three to four minutes on a cooling tray after roasting. They then pass through a destoner and magnet and into a silo, or holder. The silo's release is connected to the blender's stationary inlet. When it is opened, the beans flow into the vessel by gravity.

A typical mixing cycle lasts about five minutes. "We can do it in three, or three and a half minutes, but we do five to ensure the best quality outcome" Ramay said. A timer is used to control the process.

At the end of the blending cycle, the internal lifters direct the material through the discharge opening which, like the inlet, is stationary. The vessel rotates until discharge is complete, leaving almost nothing behind. Between batches cleaning is done with compressed air.

Pablo & Rusty's usually runs four to ten mixing cycles per day over an eight-hour shift, and most batches are 661 lb or 1,323 lb (300 kg or 600 kg), with the mixer equally efficient at varying batch sizes. Roasting is done 'in threes' to suit the company's three varieties of coffee blends — Porter Street, Pioneer and Trailblazer. Typically, each is a blend of beans from three origins.

For quality control, Pablo & Rusty's measures and records a variety of data during each roast. With load cells built into the new mixer, the company can track how much moisture the roasting process removes. "We had a fairly good idea before but knowing the exact moisture loss is an added benefit," Ramay said. The mixer is also dust-tight, unlike the tray blender.

Munson's 700-TS-75-MS rotary batch mixer also fits Pablo & Rusty's drive for sustainability because it runs about 75 percent less time per cycle, requires only a 10 HP (7.5kW) motor (powered by a rooftop solar system).

Armed for Future Growth

With the new rotary batch mixer, Ramay said, "We wanted to make sure that we can scale up, and with this piece of equipment, we can grow capacity about two to three times. We can also scale down, which was needed when Covid-19 happened."

Ramay said the company has doubled its revenue over the last three years. And while there are no current plans to expand the number Pablo & Rusty cafés, there is still opportunity for growth.

Internal flights direct beans toward and through a stationary discharge as the vessel rotates until fully evacuated, preventing segregation of beans having disparate sizes, shapes or bulk densities.

"Our focus is to positively impact people and planet through coffee. We focus on growing through multiple channels of direct to consumer, wholesale and private label," he said. "So, we're not opening more cafés, but growing to do the most good that we can. We are a B Corp, 1% for the Planet member and a Carbon Neutral Organisation.

With the 700-TS-75-MS rotary batch mixer, as Pablo & Rusty's grows and demand increases, Knauth said that its capacity of 75 cu ft will also keep up with growth.

Furthermore, Ramay said that not only has the rotary batch mixer more than tripled the batch capacity of the previous mixer, he also noted that "it's a simple piece of equipment and it is easy to maintain."