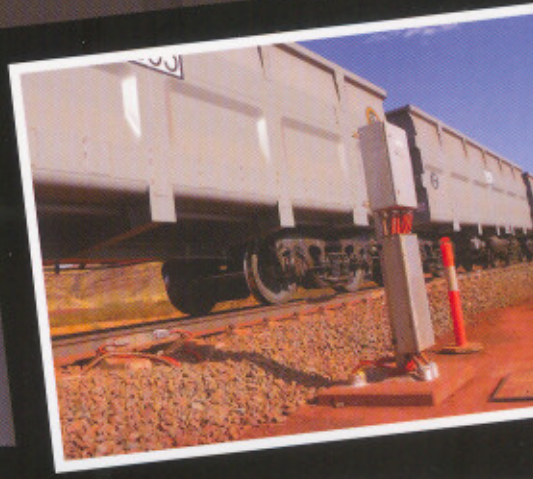
AUSTRALIAN
BULK HANDLING REVIEW

www.BulkHandling.com.au
Volume 17 No 7 November/December 2012

- 20-page feature on dust control
- Dissecting the Imperial Sugar dust explosions
- Peer reviewed paper: Preventing conveyor belt failure, by Alex Harrison
- Replacing Rio Tinto's East Intercourse Island train positioner
- NCIG coal export terminal stage 2AA expansion
- 36-page Bulk Handling Awards supplement



MERIDIAN ENGINEERS

Precise Train Loading and Weighing solutions...

pg 34

Munson ribbon blender for sanitary food processing

US-based food processor Quality Custom Blending (QCB) recently purchased a sanitary ribbon blender from Munson. QCB said its selection criteria were influenced by the need to maintain processing standards, such as the U.S. Food and Drug Administration's standard for food and pharmaceutical ingredients and also the FDA's Hazard Analysis Critical Control Points.

QCB's Munson HD-3 ½-7-SS Horizontal Ribbon Blender occupies its own sanitary room to minimise cross contamination and comply with FDA and other standards.

QCB is a family owned and operated business, founded in 1976 and specialising in custom blending of dried powdered food products, including drink crystals, rice products, pastry/dough improvers and various powdered blends for the food and beverage industry.

The company is a major supplier to US, Canadian, European and Asian food companies and has two locations in Ontario: Trenton and Mississauga.

Trenton plant manager, David Butler, said "In 2006, we had grown to the point where we needed to add a second ribbon blender to our Trenton facility, in addition to the three already installed at Mississauga. We compared machines available from several manufacturers, including the supplier of our original four machines.

"It looked like the Munson HD-3 ½-7-SS Horizontal Ribbon Blender, with a capacity of 1.84m³, might be the best fit for our needs. We arranged a tour of Munson's manufacturing facilities and were so impressed that we ordered one on the spot."

Munson's ribbon blender has a standard vessel design, a clean one-piece welded unit with heavy-gauge vessel walls and thick, reinforced end panels. Air-purge seals around the shaft are removable to facilitate power washing.

Blended product discharges into customer's final package.

All of the ribbon blender's internal welds are polished from 150 to 240 grit and have a minimum 6.35mm radius to eliminate corners, cracks and crevices that could entrap material. Product contact surfaces, including the discharge grate, are constructed of stainless steel. "The interior of the blender looks like a mirror," Butler said.

Butler said QCB needs to assure compliance with industry standards, including: visual inspection of all incoming and blended materials; sifting and monitoring materials for particle size and integrity; passing them through a rare-earth magnet for product safety; and blending them in validated, sanitary and well-maintained ribbon blenders, each in its own sanitary room to prevent any possibility of cross-contamination.

Versatility is an important requirement

Butler said "We blend a wide array of food products. Batch sizes can vary from as little as 250kg to 1t, which is the full capacity of the blender, but usually average about 1t. The amount of material added can range from as little as 0.25% of the final blend all the way up to 50%, so we need versatility, which is one of the reasons we selected the Munson blender."

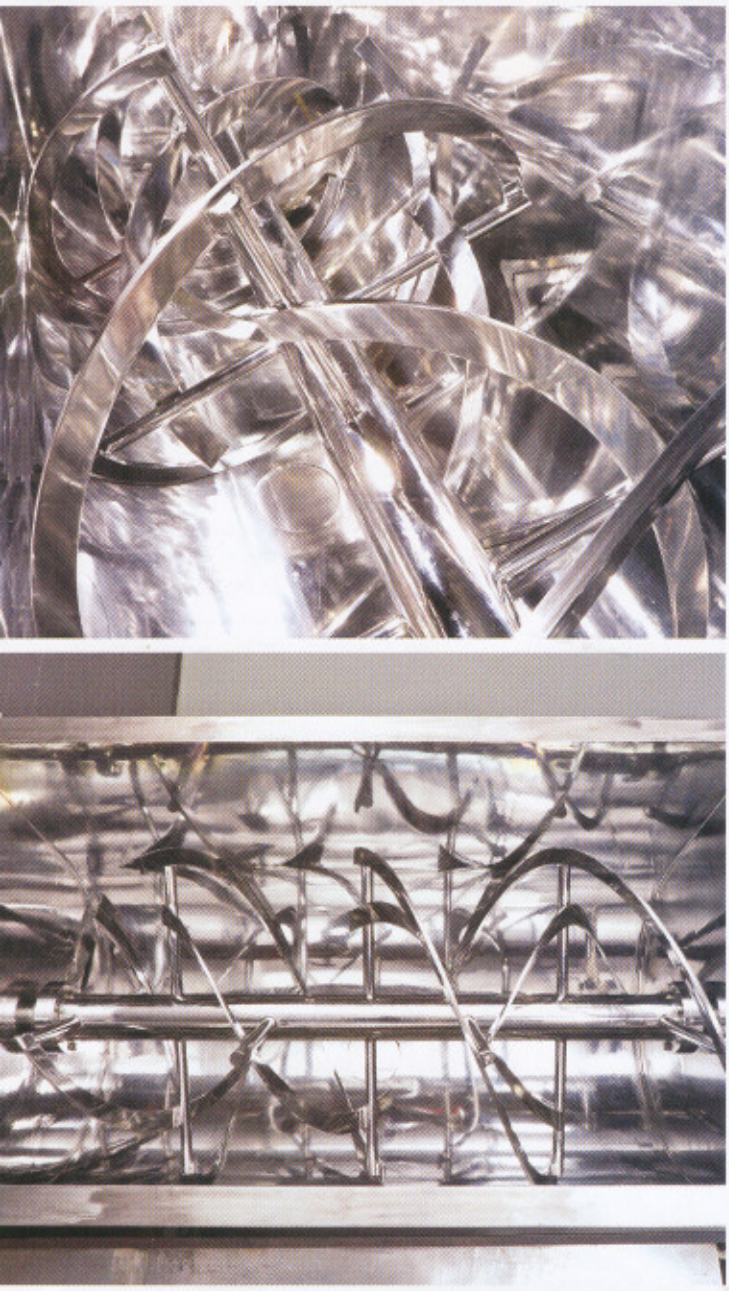
Thorough mixing over a wide range of material proportions is assured by the design of the split double helical agitator with its 2:1 length to diameter ratio, which subjects every particle of material to agitation during loading, blending and discharge.

"We don't measure the bulk densities of the ingredients provided by our customers, but they vary widely and the blender can easily handle all of them," Butler said.

"In one case, 600kg of a very dense material was loaded into the blender. Because we chose the option of centrifugal clutch type motor couplings for start-up under load, however, the blender started immediately."

Changed seals to withstand abrasive materials

"Ribbon blenders are designed with packing glands that create a mechanical seal where the shaft penetrates the blender wall," Butler explained. "Because many of the materials we blend are highly abrasive, however, they were wearing away the braided Teflon packing, allowing material leaks and requiring packing to be replaced frequently.



For sanitary operation, all product contact surfaces of the blender are constructed of stainless steel. Split double helical agitator subjects every particle of material to agitation.

"Although air-purge shaft seals available from Munson as an option were not originally specified, they ultimately proved necessary and we replaced the original seals with them. They apply positive pressure to drive abrasive particulates away from the seals, which show no signs of wear or leakage after extensive use."

QCB receives raw materials in containers ranging from bags, cartons and fibreboard drums to totes and bulk bags weighing as much as 900kg. "We don't treat or process these materials, but add them directly to the blender according to the recipe provided by the customer," Butler said.

"Some of the recipes require the addition of edible oil, but we add it manually, hand weighing it for accuracy, rather than using the liquid addition spray line.

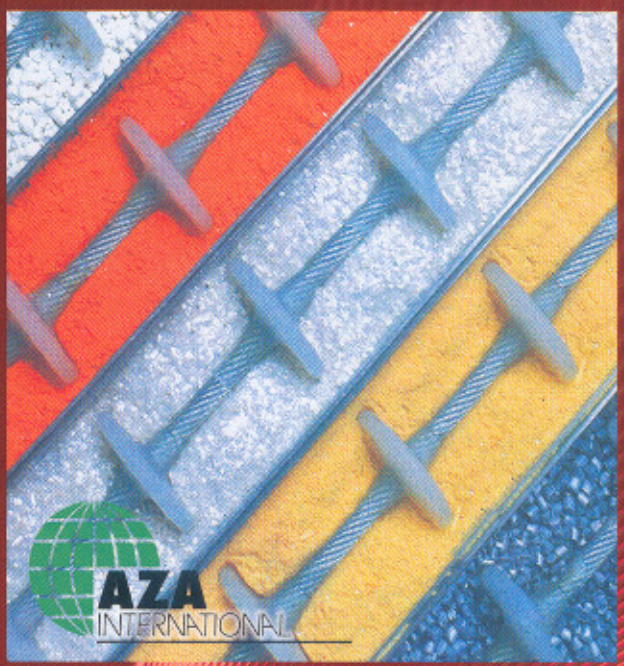
"We try to schedule our production runs to minimise the number of product changeovers, and have the capability to run as many as 3 different products in one day.

"We usually average about 8 to 10 batches before switching products. A long run may last as long as 3 or 4 days. With each batch, an operator activates the blender and the agitator blades begin to rotate when the blender is half full, and a typical batch takes about an hour.

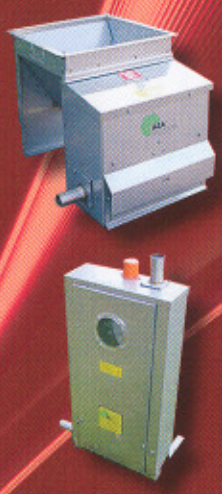
CABLE CONVEYORS

Used throughout the world, AZA Conveying Systems move granular or powdered material by means of discs moulded on a cable running inside a multi-directional closed circuit tube. Operated by a single drive, the system allows for loading or discharge points anywhere on the circuit to suit a particular application.

CONVEY IN ANY DIRECTION: UP – DOWN – DIAGONAL OR AROUND CORNERS & BENDS



SIGNIFICANT BENEFITS:



- Competitively priced with other systems
- Long circuits possible – up to 500 metres
- Capacities up to 9 cu. dm/h
- Low energy use – Max 2.2 kw
- Simple to install and operate
- Quiet operation & compact in dimension
- Total elimination of dust pollution
- Protects conveyed material
- Circuit can be pressurised if required
- Stainless steel

NATIONAL DISTRIBUTOR

SARUS PTY LTD

PO Box 499, Forbes NSW 2871

TEL: **+61 (0)2 6851 1747**

FAX: **+61 (0)2 6851 2134** | MOB: **+61 (0) 412 905 720**

EMAIL: **info@sarus.com.au** | WEB: **www.sarus.com**

Inventory includes drums, boxes, bags of incoming raw materials, and finished, blended products for shipment to customers.

"When a batch is completed, the blended product is discharged through a slide gate and fed through a magnet to detect any metal particles, then fed directly through chutes into the final packages supplied by the customer.

"We can package finished goods in a variety of ways, including 5 to 25kg heat-sealed multi-wall bags, sewn multi-wall bags with or without plastic liners, 5 to 25kg corrugated cartons with plastic liners, 5 to 20kg plastic pails, 10 to 100kg fibreboard drums with polyethylene liners, or totes or bulk bags weighing up to 1200kg," Butler said.

High sanitary standards maintained

Changeover between products is fast and easy. "The Munson ribbon blender has its own sanitary room to eliminate any possibility of cross-contamination," Butler explained.

"Because of the tight tolerance of 1.6 to 0.8 mm between the ribbon blades and the blender wall, very little material from the previous run remains to be cleaned out. We simply remove the ends to power wash and sanitise the interior of the blender." ■

Contact: www.qualitycustomblending.com

ABB's automation, electrification contract with Anglo Coal

System 800xA operator workplace.

ABB has won a US$38m contract to design, engineer and supply an integrated automation and electrification system for Anglo American's $1.1bn Grosvenor coal project, which is adjacent to the latter's Moranbah North mine.

ABB's contract includes supply of its Unigear ZS1 switchgear and space saving water-cooled multi-drive equipment, which are designed for a smaller substation footprint to lower capital costs for the project.

An 800xA automation system from ABB will be deployed to integrate and control all processes and power systems. ABB said the System 800xA is designed for composite mining projects with plant wide process control.

ABB's scope of supply also includes a 66kV substation, power and distribution transformers, 15 modular pre-fabricated switchrooms equipped with medium-voltage switchgear and intelligent low-voltage motor control centres, power quality systems and multi-drive variable speed drives.

ABB will provide design, engineering, testing and project commissioning as well as other site services.

The Grosvenor coal mine is expected to produce 5mtpa of metallurgical coal for export markets over a 26 year mine life.

The new mine will feature a standard longwall design and will target the same coal seam as Anglo American's existing Moranbah North mine.

Equipment delivery is scheduled to commence mid-2013.

The new mine is expected to enter production in 2013 with commissioning of the longwall slated for 2016. ■

Contact: www.abb.com