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FOCUS ON GAS DETECTION

## ULTRASONIC GAS LEAK DETECTION

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USING GAS MONITORS  
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HOW TO READ A REGULATOR FLOW CURVE - 2

SANITARY RIBBON BLENDER  
HELPS FOOD PROCESSOR



MOORE'S MODEL WNM  
WIRELESS NETWORK  
MODULE

Page 15



IQ ROTARY LOBE PUMPS  
FROM JOHN BROOKS  
COMPANY

Page 21



MODEL 6550 AND 6555  
MEGOHMMETERS FROM  
TECHNICAL SYSTEMS

Page 22



KSB'S VITA PUMPS ARE  
DESIGNED FOR STERILE  
APPLICATIONS

Page 11

# Sanitary Ribbon Blender Helps Food Processor Meet GMP, HACCP Standards

Quality Custom Blending is a family owned and operated business specializing 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. Founded in 1976, the company has grown to become a major supplier to United States, Canadian, European and Asian food companies from its two locations in Trenton and Mississauga, Ontario, where it maintains its headquarters.

A major factor influencing the company's growth is its insistence on maintaining high quality standards, including GMP (Good Manufacturing Practices – U.S. FDA's internationally



Munson Model HD-3 ½-7-SS Horizontal Ribbon Blender blends materials of widely varying bulk densities.

recognized standard covering food and pharmaceutical ingredients) and HACCP (Hazard Analysis Critical Control Points – FDA food safety standard, and part of the Canadian Food Inspection Agency's Food Safety Enhancement Program).

The company takes steps to assure compliance with these 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.

"In 2006, when 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," says David Butler, Trenton Plant Manager.

"It looked like the Munson Model HD-3 ½-7-SS Horizontal Ribbon Blender with a capacity of 1.84 cu m (65 cu ft) might be the best fit for our needs. We arranged a tour of their manufacturing facilities and were so impressed that we ordered one on the spot."

## Versatility is an important requirement

"We blend a wide array of food products," Butler explains. "Batch sizes can vary from as little as 250kg (550 lb) to a metric ton (2,200 lb), the full capacity of the blender, but usually average about 1000 kg (2200 lb). The amount of material being added can range from as little as 0.25 percent of the final blend all the way up to 50 percent, 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," says Butler, "but they vary widely and the blender can easily handle all of them."

In one case, 600 kg (1325 lb) 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 explains. "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."

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 ap-



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.

ply positive pressure to drive abrasive particulates away from the seals, which show no signs of wear or leakage after extensive use."

The company receives raw materials in containers ranging from bags, cartons and fiberboard drums to totes and bulk bags weighing as much as 900 kg (2,000 lb). "We don't treat or process these materials, but add them directly to the blender according to the recipe provided by the customer," says Butler. "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 minimize 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.

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 (11 to 55 lb) heat-sealed multi-wall bags, sewn multi-wall bags with or without plastic liners, 5 to 25kg (11 to 55 lb) corrugated cartons with plastic liners, 5 to 20kg (11 to 44 lb) plastic pails, 10 to 100kg (22 to 220 lb) fiberboard drums with polyethylene liners, or totes or bulk bags weighing up to 1200kg (2650 lb)," says Butler.

## High sanitary standards maintained

Changeover between products is fast and easy. "The Munson ribbon blender has its own



Split double helical agitator subjects every particle of material to agitation.

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Blended product discharges into customer's final package.

sanitary room to eliminate any possibility of cross-contamination," Butler explains. "Because of the tight tolerance of 1.6 to 0.8 mm (1/16 to 1/32 in.) 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 sanitize the interior of the blender."

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

All of the ribbon blender's internal welds are polished from 150 to 240 grit and have a minimum 1/4 in. (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," says Butler.

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### Lockout assembly provides explosion protection

Fike has released a new design for its HRD Lockout Assembly. This explosion protection product is a mechanical barrier used to prevent an accidental discharge of an explosion suppression container (HRD) into the process vessel during maintenance and cleaning of the vessel and/or protection system. The new lockout assembly features a simplified design with easy to install electronics, 300 series stainless steel construction and optional secondary sensor for safe condition monitoring.

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### Valves for hazardous media applications



Noshok has announced the new 3070 Series Double Block and Bleed Valve with redundant isolation valves and a dedicated vent valve to ensure additional safety in hazardous media applications. They have a 10,000 psi hard seat pressure rating @200°F. The block valve isolates the downstream process fluids, while the bleed valve exhausts upstream fluids enabling instruments to be removed without disturbing the permanent piping installation on the bottom.

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