



# Mix it Up!

## The right mixers and blenders are key to a successful processing business

**B**lenders and mixers are critical to meeting bulk material processing requirements at most food processing plants, with their ability to mix or blend dry, wet, and viscous food ingredients for transformation into high-quality products.

Therefore, choosing the right equipment is essential for process optimisation and product consistency, a subject that Erin Dillon, media and marketing coordinator at ROSS, a manufacturer of mixing equipment, knows a lot about.

ROSS food mixing equipment includes dry blenders, high shear mixers with SLIM technology, dual shaft and triple shaft mixers, and double planetary mixers. While the sheer range of products may seem daunting to even experienced processors, ROSS makes selection easy by segmenting usage on its website into specific categories: for cheesecake formulations, candy and confectionary, dry solid blends, gums, juices, and even pet food.

An example of ROSS's guidance is its overview of candy and confectionary: "The ROSS VersaMix is the new choice for candy and confectionary manufacturers. This highly viscous application was previously made using double arm sigma blade mixers. However, gum dispersion can be inadequate resulting to fish eyes and lumps in the finished product. Several lab tests have confirmed that the VersaMix can properly disperse these gums and create a smoother, better quality product. Conventional propeller or turbine mixers simply cannot achieve the same level of dispersion, nor could they handle this tough mixing application."

The ROSS line of VersaMix Multi-Shaft Mixers, introduced in January of this year, is built for longevity, speed and efficiency. As with the high shear mixers, VersaMix models feature Solids Liquid Injection Manifold (SLIM) technology that renders raw material additions less dusty and avoids lumps or fish eyes.



**Erin Dillon, media and marketing coordinator at ROSS**

Identifying the most appropriate mixing technology for a particular application is key because the primary issue that leads to poor mixing and blending lies in the choice of equipment. It must meet viscosity and shear requirements, in addition to temperature, vacuum/pressure, batch size fluctuations, preferred methods of raw material addition and discharging the finished product, recipe changes and other process conditions.

Dillon recommends a periodic review of existing mixing operations and switching to more efficient and cost-saving technologies as applicable. "When choosing among mixer suppliers, food processors should prioritize well-established manufacturers with a long history of building high-quality, robust machinery and the infrastructure to assist in R&D and on-going process improvement efforts, through lab trials, rental equipment and mixing experts on staff."

ROSS suggests that manufacturers of fortified milk and juices consider its Sanitary



**Ross mixers are designed for easy cleaning and sanitization, as well as simple maintenance.**



High Shear Mixers; meanwhile, common applications of most ROSS ribbon blenders (which are available in a variety of customizable configurations ranging from laboratory sizes to 1000 cubic feet) include coffee, spices, food coloring, flour, sugar, cake and bread mixes, frozen vegetables, salsa mixes, snack foods and tea blends.

Ross mixers are designed for easy cleaning and sanitization, as well as simple maintenance. Basic features include high polish stainless steel surfaces, interchangeable mix vessels, sanitary fittings and valves, food-grade packing, FDA-compliant elastomers, and 3A stamp on our line of sanitary inline rotor/stator mixers. Additionally, depending on the type of mixing equipment, options such as dry-running seals, purged gearbox assemblies, gable-top bonnets, actuated valves, and CIP spray nozzles are available.

Bill Noonan, senior application engineer at Marion Process Solutions, is a self-proclaimed process junkie who loves discussing the manufacturing process; and since Marion is dedicated to delivering custom-manufactured processing solutions to the food and many other sectors, Noonan is adept in suggesting the best equipment fit for specific applications.



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For those new to the processing sector, Noonan stresses that equipment selection must be made at least in part with sanitary objectives in mind. "Look for equipment that has smooth, welded finishes on all parts both inside and outside of the mixer or blender," he says. "In addition to the finish, there should be no bolts, crevices or other areas where food particles might get lodged."

"Mixers and blenders should also offer access and easy viewing of surfaces for cleaning and inspection personnel. It should not require intensive training for someone to learn how to thoroughly clean a mixer or blender. Gaskets and seals should also be airtight to prevent powders from escaping, however they should also be easy to replace when they are worn."

Noonan goes on to note that, "Although there are many specific food and beverage applications, horizontal mixers, fluidizing paddle mixers and double-cone blenders are strong-performing equipment for food processing."

Other primary considerations for choosing mixers and blenders include site requirements (safety, floor space





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availability, nearby machines and other physical aspects of the space where the mixer or blender will operate must be assessed); business trajectory (changes in formulation and projected company growth must be forecast and may affect equipment investments); and durability of the machines themselves (trying to save money on initial up-front investments is never a wise move).

Technavio's latest market research report shows that the industrial food blender and mixer market is poised for substantial growth: a \$6-billion increase in sales across North America between now and 2027, driven by a steady expansion of the food processing industry and a notable trend towards industrial food blenders with enhanced control features. "High-shear mixers are particularly crucial for food production companies engaged in preparing sauces, salsa, spreads, syrups, oils, gravies, marinades, and gels," the report states, and goes on to note that major market players are investing in the development of innovative

equipment to enhance the quality of blending and mixing operations: "This trend underscores the industry's commitment to staying at the forefront of technology to meet evolving consumer and industrial demands."

However, the reality of food processing is that its entrepreneurs usually start at the bottom – quite often literally in their own home kitchens. Therefore, equal care must be taken in selecting smaller blenders and mixers. Companies such as Hubert sell an extensive line of tabletop blenders and hand mixers manufactured for commercial use – meaning, they are far more resilient than store-bought models (although prices are substantially higher too: a Proctor Silex High-Performance Food and Drink Blender sells for close to \$700, and a Robot Coupe Large Turbo Combi Mixer with whisk attachment costs over \$2,000).

But as is the case with their industrial counterparts, commercial equipment must be considered for their ease of cleaning and durability. Canada

Food Equipment points out in a blog about commercial hand blenders that motor power is crucial, and that higher-wattage motors (such as a 1 HP for immersion blenders) can handle tougher ingredients and larger volumes. Stainless steel construction is preferred for its strength and ease of cleaning; also, the blog urges prospective buyers to "look for models with ergonomic handles and balanced weight distribution to reduce operator fatigue."

Finally, working with experienced vendors who can provide information and support during the equipment selection stage as well as after purchase is essential and in many cases will be the key to ensuring the ideal match for usage as well as optimal performance. While there's no getting around substantial up-front investment, wise choices translate into mixing and blending equipment that can last for decades. **WFP**



*Bill Noonan, senior application engineer at Marion Process Solutions*