



Cutting *in*

The technology behind today's diced and sliced proteins requires precision and solutions-based innovation.

For meat and poultry processors, increased demand for proteins in a variety of formats, from convenient snacks at retail to toppings and ingredients for foodservice customers, size reduction technology provides opportunities to expand offerings and grow their base of customers.

Today's consumers are eating on the go more than ever. According to the latest "Future of Snacking" report from the Hartman Group, snacking is an essential part of consumers' daily eating habits. In fact, the Hartman Group's report concluded that 91 percent of consumers snack multiple times each day. According to David Portalatin, a food consumption industry analyst with the market research firm, The NPD Group Inc., snacking is at the core of Generation Z consumers' (those born since 1997) diets. Gen Z's perception of snacking includes incorporating ready-to-eat foods in their diets not only in-between meals, but also as part of their meals and across dayparts.

"Snacking is just an extension of who this generation is," Portalatin said. "They're more likely than any other generation to incorporate snack foods as a part of breakfast,

lunch or dinner." In fact, they're doing this at a rate 53 times more on a per capita basis annually than any other generation.

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food safety and quality has, perhaps, never been higher and the diversity of channels where products are sold become more fragmented by the day. Meeting the growing list of expectations from consumers creates challenges for processors whose customers strive to meet and exceed those requirements. The variety of portion sizes and packaging options available at retail outlets, from supermarkets to big-box operators is evidence of today's demand for products such as multi-compartment snack packs, loaded with any combination of fruit, nuts, sliced meat, cheese or even hard-boiled eggs.

Beyond snacking

Food&Wine magazine recently identified a variety of applications where proteins can fortify vegetable-based recipes for at-home cooks and on mainstream food-service menus. The foodie-focused

salad items identified by the magazine as on-trend are protein heavy. According to its recent "Top 10: Salads" recipe ranking, sliced, poached chicken is the highlighted ingredient of a recipe for an Asian chicken salad accent-

ed with Wasabi dressing to blend the poultry with tangy flavors and crunchy textures, including cucumber, Asian pears and bean sprouts. Warm flank steak is the protein feature of another chef-inspired recipe highlighted on the list, which recommended the use of sliced, soy-marinated flank to add savory flavors and heartiness to a variety of fresh vegetable options. Another salad-pairing delicacy from *F&W's* list is a prosciutto-topped Farro salad with fried cauliflower, adding a salty, Italian twist to ingredients that include whole-grain wheat, crunchy vegetables and nuts. Small morsels of smoked pork are paired with melons and peaches and mozzarella in another of the Top 10

list of salad recipes.

At-home cooks are also quick to take advantage of shortcut-focused protein products now available at supermarkets, which take steps out of preparing meat ingredients for recipes, including

diced and rectangular-sliced ham, bacon, turkey or chicken. These products are rapidly becoming a bigger part of retailers' shelves, alongside luncheon meats. The versatility of diced and sliced proteins offers consumers, pro-

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Precision points

Equipment designed to produce diced and sliced proteins, including raw and cooked products across multiple species, allows processors to capitalize on the opportunities to deliver products that today's consumers crave. Technology focused on flexibility and maximum throughput while offering industry-leading sanitary design has always been in the DNA of equipment from Marlen International. Its latest innovations in size reduction technology are highlighted in the design and streamlined functionality of the Carruthers DuraKut™ 6000.

Applying technology for today's processors is multi-layered and there is no silver bullet when it comes to offering solutions. According to Bill Williams, Carruthers product sales manager, the ability to tailor solutions to the needs of customers should always be the goal of new equipment innovations.

"The No. 1 thing customers want is a customized solution," said Williams. "There is no one-size-fits-all answer."

This is especially true when it comes to size reduction in processing environments. "The needs vary at all aspects of cutting," said Williams, from inputting the product and delivering it to the machine to how to infeed most efficiently and then, how to best handle it going away from the dicer. "We keep hearing, 'it sure is nice to have somebody willing to work with us on a complete line solution,'" Williams said, and the DuraKut is just that.

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In commercial, large-scale processing environments, size reduction of protein products requires technology that produces a consistent, quality product efficiently and at a high rate of speed.

Williams said the design of the latest generation machine is the result of bringing customers from the industry's largest processing companies into the Marlen headquarters in Riverside, Missouri and asking the engineers and operators working with the machines, for their honest assessments about the pros and cons of the design and performance of the slicer/dicer. The feedback proved to be the blueprint for the current DuraKut 6000 2D dicer which first made its debut at Process Expo last fall in Chicago.

Engineering matters

In commercial, large-scale processing environments, size reduction of protein requires technology that produces consistent, quality product efficiently and at a high rate of speed. The Carruthers DuraKut 6000 two-dimensional dicer combines the latest user-interface technology with the most reliable and proven machine components. Allen-Bradley's newly launched controls interface ensures user-friendly operation and maintenance of the DuraKut. Its MobileView HMI provides information and data on the equipment's operation, designed for high-volume and continuous product flow. Depending on processor preference,

the dicer can be equipped with either variable-frequency (VFD) or Servo drives. Engineers recently incorporated Servo technology to more precisely start and stop the dicer's blades and belts.

Both versions are designed for versatility and can accommodate complete, precision cutting of proteins, including fresh, tumbled, crust frozen and even cooked products. "We can dice and slice products, whether they're coming right out of the oven or if they are crust frozen," Williams said. "Nobody else can do that."

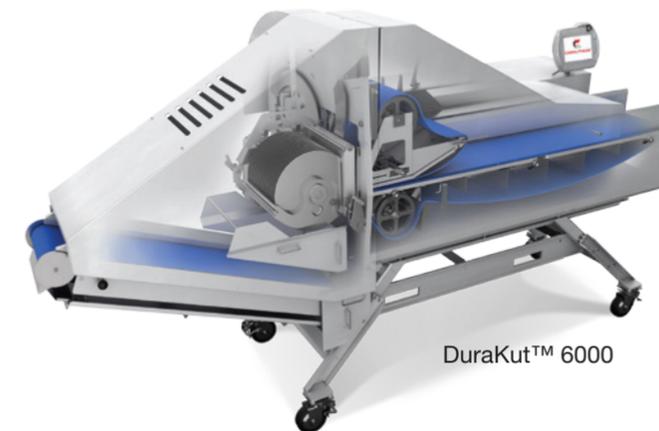
A redesigned spiral knife minimizes product movement and ensures precision cuts and the DuraKut's system of in-feed and discharge belts allow for integration up and down the processing line, regardless of the product. When working with pork bellies for example, usually the sidestraps and the lower grade products that didn't meet the specs for the highest margin products, such as bacon strips, are relegated to dicing. With the DuraKut, those "second" products can be delivered directly to the infeed side of the machine instead of by a hopper. "From there the diced pieces are utilized for pizza toppings or possibly conveyed to another area where they can be cooked for bacon bits for salad toppings," Williams said.

Opening the door for processors to realize new revenue streams by creating a market for what was formerly second-tier and trim products is just one of many benefits behind the latest innovations built into the DuraKut.

The DuraKut's cutting area is where both the first dimensional cuts and the second dimensional cuts are made using circular blades with adjustable fingers and spacers to create 5mm to 3-inch spacing between the knives. This cutting design and configuration of the blades as well as the upper conveyor belt have been signature design features of Carruthers cutting machines for nearly 30 years. The machine's rolling parts cart is designed to hold the belts and other parts after disassembly in preparation for sanitation.

Seeing is believing

In response to processor-based feedback that language is a common barrier for operators of equipment, designers of the DuraKut committed to creating the most user-friendly, intuitive interface possible. The MobileView HMI is the result of Marlen International's engineering team partnering with Allen-Bradley and Rockwell Automation. Featuring a graphics-based user interface, operation is straightforward for non-English speaking workforces with easy-to-understand visual symbols and graphics that provide information and instructions for operating and maintaining the dicer.



DuraKut™ 6000

"A 10-inch-wide Allen Bradley HMI PanelView 1000 control screen is tethered to allow operators to be able to access all parts of the machine with the touch-screen-based control panel in their hand," said Williams. The screen can be easily removed during washdown, he said, which is a feature designed into all critical components of the DuraKut.

As a Rockwell Automation Equipment Builder Partner, Marlen has demonstrated the ability to utilize Augmented Reality (AR) that is based on the newly engineered control panel. The equipment also uses PackML, a programming platform designed to integrate the operations of multiple types of equipment to ensure they are communicating correctly using the same language. The system also offers eWon technology to enable remote access to operational data from the machine for monitoring and troubleshooting.

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Sanitation focus

The sanitary design aspects of the DuraKut were another priority of the engineers of the equipment. One of the largest processors of diced toppings in the country recently endorsed the DuraKut as one of the industry's most advanced in terms of sanitary design just before ordering two of the dicers.

"If you look at the machine, there are no flat surfaces, everything is sloped and it's all designed to be washable from head to toe," Williams said, pointing out the absence of external hinges on the DuraKut's covers and door panels. The open-channel framework is another sanitary design feature that has become a standard, eliminating opportunities for pathogens to harbor in hard-to-access areas.

To simplify washdown, internal drive belts are designed for easy removal and are stored on pegs mounted on the machine to improve access to internal parts for sanitation. Conveyor rollers, belts and rails are also designed for easy disassembly and have designated storage areas on the

machine during sanitation. "It's simple and anyone can do it," Williams said, and the entire disassembly process can be completed in a matter of minutes. The ergonomically designed parts cart, "that lives with the machine" features a plastic, water-resistant box to house and protect the machine's removable HMI.

"There's a place for every part that comes off of this machine," said Williams.



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