SPOTLIGHT ON PROCESSING DEVELOPMENTS

Cutting machine controls particle uniformity

Pasty processor cites benefits of quality, labor savings, safety, and versatility

ROBERT M. SPERBER, *Assistant Editor*

Uniformly diced potatoes, carrots, turnips, and celery are held for subsequent mixing

Peeled potatoes are conveyed to size reduction machine hopper, are diced into thin squares, and exit into "tote bin"

American consumers are more familiar with frozen pizzas, refrigerated deli salads, and microwavable burritos than they are with the "pasty," a mainstay convenience-oriented product in the U.K. Although originating from different cultures, these products all have something in common: all contain ingredients that must be uniformly cut or diced.

Like a pot pie—without the pot—a pasty is a meal of meat and vegetable fillings in a pastry shell. A major U.K. company, Ginsters Cornish Pasties, Ltd., produces about 2-½ million pasties, sausage rolls, and similar products each week at its two Cornwall, England bakeries. Accordingly, the company processes large quantities of vegetables each week: approximately 80 tons of potatoes, 20 tons of swedes (Swedish turnips), 20 tons of onions, and lesser quantities of carrots, celery, mushrooms, and other vegetables.

Until recently, Ginsters used a size reduction machine to process these vegetables that was based on a grid of adjustable blades and a rotary knife above the grid section. When the time came to replace this unit, the company's main criterion was to improve cutting uniformity.

Uniform cutting

Ginsters installed one size-reduction machine in each of the Cornwall bakeries. The model they chose incorporates three types of knife assemblies to achieve the desired food particle size.

After vegetables are cleaned and inspected, they are fed into the unit's hopper. They proceed into a chamber with a rotating impeller that uses centrifugal force to hold product to the chamber wall. Product is first cut by a stationary slicing knife. Sliced product is then cut by a continuously rotating spindle of crosscut knives, and fed into another rotating spindle of circular knives.

Ginsters cuts potatoes into ⅛″ × ¾″ × ¾″ cubes. Other vegetables are cut into a variety of sizes down to a ⅜″ cube. Adjusting the position of the slicing knife, or changing over the crosscut or circular knife with optional assemblies permits a range of size reduction possibilities.

Diced vegetables are blended with the meat, gravy, spices, and other ingredients and the filling is deposited onto laminated pastry on an automated make-up line. The raw pasty is then crimped, egg-glazed, and baked in an indirect gas-fired tunnel oven. Fin-

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ished product is chilled in a spiral freezer and packaged.

Benefits

General Manager John Stevenson told FP of the size reduction machine, "Quality is consistently higher. By getting a more uniform vegetable particle, the final presentation within the finished product is much more uniform, and therefore much more attractive."

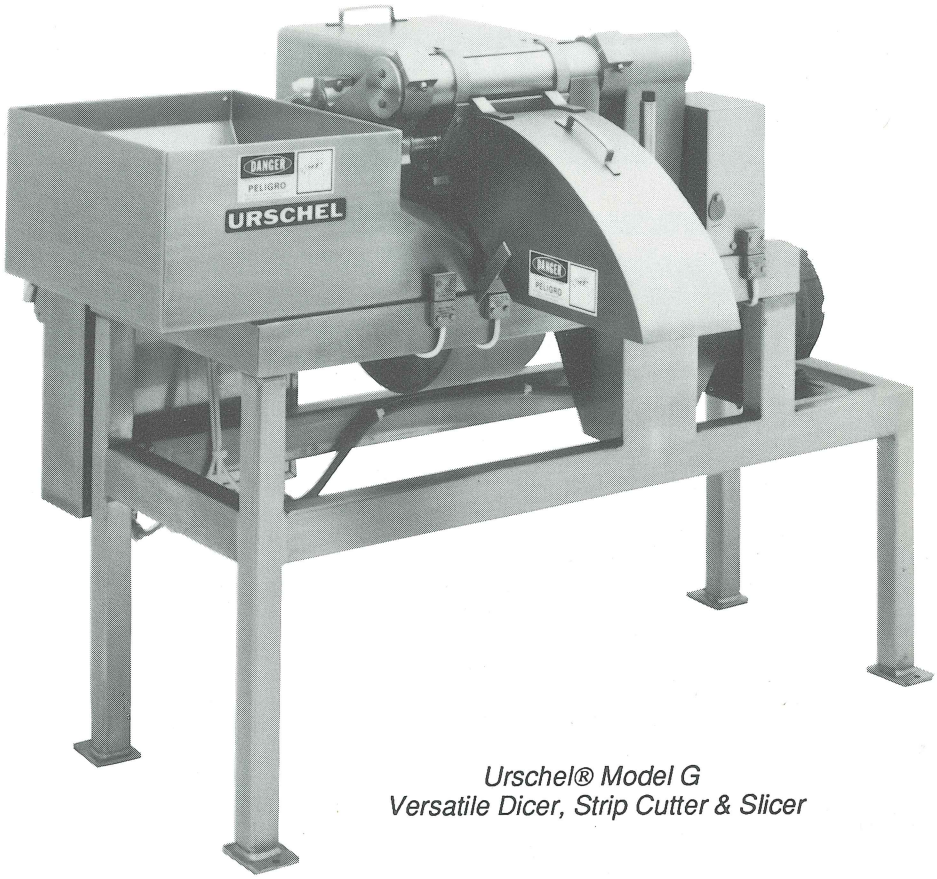
Additionally, cutting capacity is greater with the new units. According to Stevenson, "We spend fewer man-hours preparing vegetables than would be necessary on the previous equipment—about 40% less."

While no formal studies have been made, Stevenson said that high uniformity of particles in the raw mix may contribute to consistent ingredient dispersal and unit weights (per pasty). Control over particle size is also a factor which may prevent jamming of the make-up line depositor's mechanical pistons.

Ginsters has bought optional crosscut and circular knife spindle assemblies which expand the possibilities for new products. As with the previous machine, changeover and blade adjustments are a relatively simple affair. However, the previous machine contained several blade edges which Stevenson said were potentially dangerous because "it was possible to put your hand into the cutter while it was operating."

Therefore, Stevenson appreciates the proximity sensors and actuators which stop the machine when any of the knife assemblies are exposed. "I consider it a major feature. It's a very, very safe machine to operate," he added. ◆

Further details on Model G size reduction unit for slicing, dicing, and strip cutting is available from **Urschel Laboratories, Inc.,** 2503 Calumet Ave., P.O. Box 2200, Valparaiso, IN, 46384.



Urschel® Model G
Versatile Dicer, Strip Cutter & Slicer

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