

*Casebook***Continuous cutting triples meat dice output**

Since 1869, Campbell Soup has kept pace with continuous changes in consumer tastes. The company's growth also has driven technological advancements in production equipment.

Campbell's Swanson line was the first frozen "TV dinner" to emerge 30 years ago. With strict operating efficiencies, Campbell Soup has maintained a significant share of the frozen entree market, providing consumers reasonably priced, nutritious, and easy-to-prepare meals.

When Campbell's needed a better way to cut prime U.S.D.A. choice sirloin beef, it looked to Urschel Laboratories to develop an innovative machine that would be easier to maintain and more cost-effective to operate.

Over the course of 50 years, Campbell has helped Urschel establish the guidelines that shape much of its manufacturing philosophy today. Campbell's strict emphasis on efficient production requires that equipment be built to exacting tolerances so that spare parts can be replaced easily between shifts.

Working closely with Campbell's Salisbury Maryland plant over a two-year period, Urschel engineers refined a prototype machine to dice fresh beef to Campbell's specifications.

The new unit not only reduced the plant's labor requirements from four operators to one, but also more than doubled production capacity and improved worker safety.

The new dicer cuts fresh, frozen tempered, and cooked meat, poultry and fish in a wide range of sizes at high production capacities. Benefits obtained with the new unit include approximately 97% waste reduction and significant savings in raw material. The ability to cut product at 40°F rather than lower temperatures can mean substantial savings in tempering time and refrigeration costs.

Here's a look at Campbell Soup's meat-dicing line:

▶ Frozen USDA choice boneless sirloin beef is tempered in an industrial microwave oven to 36°F.

▶ Tempered meat passes through two adjacent tenderizers and is discharged into tubs.

▶ Tenderized meat is hand-fed to an Urschel Model M dicer set at 3/4 in. (19 mm) by 1-1/2 in. (38 mm).

▶ Diced meat is discharged from an inclined conveyor belt to a continuous fryer at 300°F for one minute.

▶ The cooked dices are added to several Swanson and Le Menu frozen dinner entrees and several of Campbell's foodservice lines.

When cutting fresh meat, raw product is conveyed to the dicing unit and held in position between the belt drive roll and the feed roll, normally set so that the distance between the conveyor belt and feed roll is slightly less than the product thickness.

The feed drum runs at approximately the same peripheral speed as product off the conveyor belt and feed roll.

Circular knives with scalloped edges rotate much faster than the feed drum; higher speed produces a slicing action. In order to prevent the rapidly rotating knives from moving product through the dicing unit too quickly, the feed drum is designed to hold back product and allow continuous

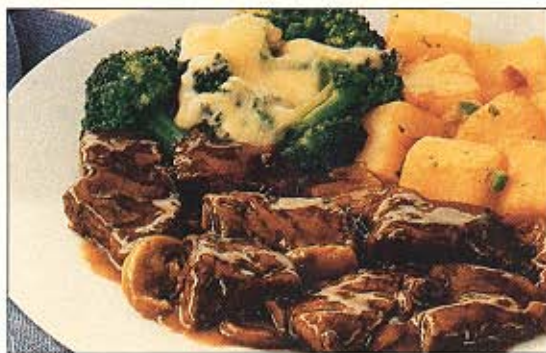
slicing action.

The circular knives penetrate matching slots in the feed drum. As the cut meat moves through the dicing unit, a stripper plate removes strips from between the knives. The product moving past the stripper plate is then crosscut to complete a square or rectangular shape and discharged.

Removing the crosscut knife spindle from the machine permits strip cuts, with length and thickness varying according to original product size.

Compared to the previous process, the Urschel Model M enabled a 200% increase in production capacity. Waste fell to less than 20 lbs. per shift. Outputs as high as 4,500 lbs. per hour are possible with one or two operators vs. 1,500 lbs. with four.

In addition to dicing fresh beef, Model M machines are successfully being used to strip, cut and dice raw and cooked poultry breast and thigh meat for ethnic entrees. Other possible uses include nuggets, tenders, and single serving cook-in-bag institutional meals. The same machine can strip cut fish for fillets and pet foods, and uniformly dice tough-to-cut pork skins for puffed snack food applications.



Fast rotating circular knives uniformly dice fresh meat into 3/4-in. squares used in Campbell's Le Menu beef sirloin tips. The Swanson line has grown to over 25 million cases annually, together with brand extensions Hungry Man, and Le Menu LightStyle.

