

## Pouches zip up pet food

**State-of-the-art \$5.5-million packaging line at C.J. Foods runs stand-up pouches with reclosable zippers; helps customers reduce and/or eliminate non-value-added costs.**

Jack Mans, Plant Operations Editor

**T**his is an industry in transition," says John Krehbiel, director of sales for C.J. Foods, a leading contract manufacturer and packager of extruded animal foods based in Pawnee, NE. "Pet food industry experts predict volume growth of only 20 percent over the next five years, but that the 'value' of product sold will grow by more than 40 percent." At the same time, the industry is subject to the type of bottom-line scrutiny that demands cost control and improved efficiencies at every phase of the process.

While more segmented, premium pet food formulations will help marketers increase the value of their products, another key way these companies are adding value is through packaging innovation, and C.J. Foods is right in step with that line of thinking.

The company, which produces more than 300 varieties of animal foods for 25 pet food marketers, recently added in-line reclosable stand-up pouchmaking equipment that allows customers to readily access this high-end packaging format. "Reclosable stand-up pouches with zippers deliver numerous benefits over traditional pet food packaging formats, from enhanced shelf presence to product protection to consumer convenience," says Krehbiel. "We saw the growing trend toward this type of packaging and invested heavily to make it a viable option for our customers."



The new equipment came online in December '99.

To take it a step further, C.J. Foods is helping customers remove a significant amount of non-value-added cost from packaging, shipping and warehousing. "We're currently one of few companies in our industry that can produce the product plus produce stand-up pouches in-house and fill them in-line," says Krehbiel. "For customers who were shipping bulk product to contract packagers for fulfillment, this fact alone can save hundreds of thousands of dollars annually."

C.J. Foods is also one of the first companies in the U.S. to utilize a new type of wraparound case packing equipment designed specifically for stand-up pouches. "There's a lot of wasted space when you pack stand-up pouches in a traditional master carton,"

Automated radial 16-head weigh-scale, top, discharges into a horizontal form/fill/seal machine that forms pouches with a reclosable zipper. New packaging line, above, produces reclosable stand-up pouches with zippers, and packs them into unique shipping cases that can easily be converted into display boxes on grocery shelves. This eliminates cost of separate display box, reduces cost of distribution box, and reduces shipping costs due to maximized size efficiency.

says Krehbiel. "The cartons we can now produce are 30 to 40 percent smaller than a traditional carton, which saves on everything from packaging materials to product damage to logistics."

### Expanded value

A 43,000-sq-ft expansion, completed last December, houses the new equipment and adds 25,000 sq ft of



warehouse, shipping and receiving space.

C.J. Foods selected a Robert's Packaging C-1500 horizontal form/fill/seal machine fed with an Ishida NZ three-tiered, 16-head combination scale from Heat and Control to achieve the optimum combination of quality and productivity. "The main reason we chose the Robert's is because it fills in a continuous motion," says Krehbiel. "The net effect is that it is nominally 30 percent faster than the next fastest machine out there."

The Robert's machine is capable of producing reclosable pouches as small as 4 x 7 in. with no gusset, to as large as 12 x 15 in. with a 5-in. gusset. Line speeds of up to 105 pouches per minute are possible with the smaller bags. Depending on density, the bags can hold from 2 oz to 8 lb of extruded animal food.

"The 12x15-in. bag is the largest size that can be made on in-line form/fill/seal equipment, or at least it was when we purchased this equipment," says Krehbiel. "To get a bag larger than that, you'd have to go with premade pouches." The company also provides contract-packaging services for larger-size premade pouches.

Pouches can be produced with or without zippers on the Robert's equipment, but to date, C.J. Foods has only had requests for reclosable pouches. "The zipper seems to be one of the more important features and functions of the standing pouch," says Krehbiel.

All of the pouches the company produces incorporate the Fresh-Lock® Style 113 zippers from Presto Products, which feature an extra-wide flange for consumer gripping and locking action consumers can feel through heavy packaging films. Ideal for stand-up pouches, the Style 113 is the only packaging component C.J. Foods purchases on behalf of its customers. "The Style 113 provides the performance our customers need, and



using a single style saves on purchasing, inventory and machine changeover costs," says Krehbiel.

### Efficiency in motion

Whereas the filling process on the Robert's equipment is continuous, the pouch forming operation is intermittent-motion. Preprinted rollstock is pulled through the machine by a servo-driven draw roller assisted by a power unwind. The film first feeds through a series of rollers as a date code is thermally applied, then is folded as it moves over a plow plate. Next, holes are punched in the gusset area that eventually facilitates sealing of the gusset tails. The gusset itself is formed as the folded film is pulled through a reverse-plow to form a "w" fold at the bottom.

After the bag and gusset are formed, the top and bottom zipper flanges are sealed to the film and the zipper is plowed open. Patented sealing ribs on the Fresh-Lock zipper enhance sealability to the wide variety of films run on the equipment and allow sealing at temperatures between 220 and 300 deg F.

A heated sealing bar creates the side and bottom seals, including the "apex" area where the four material layers meet at the gusset. The holes punched in the lower corners of the gusset are then sealed to give the gusset strength and keep the gusset flaps from opening. The last forming station is the zipper crush area, where a series of three to five stations flatten the zipper and ensure integrity of the side seal.

At this stage,

the bags are fully formed but have not yet been cut. After the photoeye triggers cutting, the pouches are transferred to the continuous-motion filling section. Here, dual clamps hold the pouch from both sides, and reciprocating vacuum cups team up with an air blast from above to open each bag.

C.J. Foods' customers select and purchase the film they want their products packaged in and have the film delivered to the plant. Krehbiel mentioned that Curwood, Printpack, Pacific Bag and Columbus Cello-Poly have supplied film for their customers.

The open bags continue by conveyor to where the Ishida scales are located. C.J. Foods uses a custom-designed "super bag nesting system" to store product between the time it is produced and when it is packaged. One-thousand-pound-capacity poly bags are "nested" within stackable steel frames, which protect the product during warehousing and handling. The frames are brought to the filling area of the Robert's equipment via forklift, and the super bags are hoisted two at a time and emptied into a receiving bin. After going through a series of vibrating screens and feeders to remove fines, product is transferred to the Ishida scales. Screens, feeders and conveyors are supplied by Meyer Machine Co.

The Ishida releases a pre-set netweight of product into oscillating timing hoppers, which then release it into the Robert's travelling funnels that follow the pouches along a 107-in. stretch and continuously introduce product into each bag. This feature allows for high-speed filling by eliminating the long dwell time typically required for filling. The filled pouches travel over a settling conveyor before the tops are sealed. A cooling bar chills the

Left to right, shipping box is perforated; converts to display box containing twin trays of pouches; can be bent in half to separate the trays; makes attractive, space-saving display on shelf.



seals to give the package top a firm, straight shape.

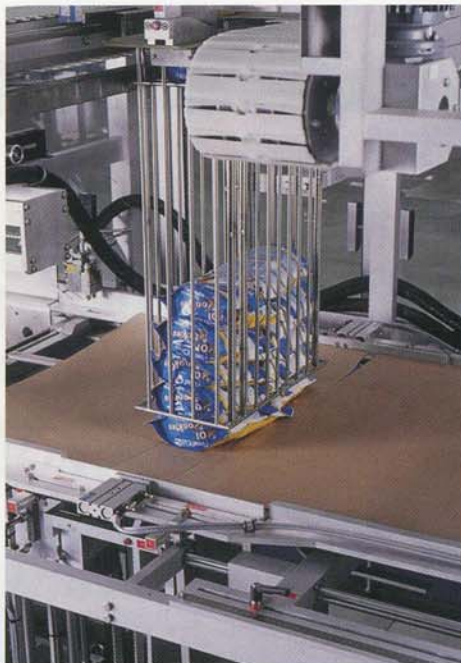
After completing the final seal, this particular machine closes the zipper, which prevents fines from entering the zipper track during shipment. "This makes it infinitely easier for consumers to close the package the first time they use it," says Krehbiel. Most zippered stand-up pouches, particularly pre-mades, are not closed when the consumer gets them. "The zipper closing feature is not standard on these machines," says Krehbiel. "We made it a point to buy this option because some of our customers demand it, particularly if they're exporting."

A computerized Safeline metal detector and Heat and Control Ishida checkweigher perform a final inspection before the packages are released for packing in master cartons. The metal detector and checkweigher were supplied by representative Westlake, Inc.

Inspected product is transferred via a take-away belt to a Nor-Reg WP-3000 wraparound case packer, which custom produces cartons for shipping. "This machine is designed specifically for stand-up pouches," says Krehbiel. "It's currently the only machine of its kind in the United States."

The unique triangular shape of stand-up pouches makes master case packing particularly challenging. The most space-efficient way to case them is to interleave them, so the tops of the bags are facing into one another and the gussets face outward. The Nor-Reg machine automates this interleaving process and builds the most efficient master case to create a finished shipping case.

The pouches are fed into the Nor-Reg gusset first, then the machine turns them so every other one is opposite and "collects" them in a cassette. From there, the cassette is placed over a corrugated "blank" that has been sized and scored to the predetermined dimensions of the finished case. As the cassette releases



**Automated wraparound case packing system is designed specifically for stand-up pouches and saves up to 50 percent on costs of shipping/display boxes, transportation and handling.**

the pouches, the machine physically folds, or "wraps," the blank around the pouches and glues the flaps. A Marsh ink-jet printer adds critical customer-specific information such as sku number, date code, etc.

As with traditional master cartons, the size of the blank is customized to each job based on pouch size and case count. Nor-Reg engineers create drawings to establish specifications for each blank, then C.J. Foods works with corrugated suppliers designated by their customers to purchase the blanks. The blanks can also be perforated to create a dual-row shelf-display box at retail. Suppliers include Menasha Corp. and Weyerhaeuser Co.

Both the *f/f/s* machine and the case packer are represented by Western State Machinery Corp.

"We are very excited about adding these new capabilities to service our customers and take non-value-added cost out of the system," says C.J. Foods president John Kuenzi. "We asked our suppliers to do a



lot of things that are uncommon for this industry. They came through with flying colors. It was definitely a team approach. We aim to stay on the cutting edge of technology and provide an outstanding and complete service that is unique to the industry."

C.J. Foods sees significant growth on the horizon in both form/fill/seal and pre-made pouches. "Our immediate plans are to improve our ability with pre-mades," says Krehbiel. "We're seeing a lot more of that volume than we anticipated. There's a strong movement away from multiwall towards big stand-up pouches—20-, 30-, 40-lb bags. People are willing to spend the extra money to have the zipper and gusset to enhance the quality perception of their product."

Beyond that, C.J. foods anticipated the need for a second, identical Robert's line when they built the new facility. The blueprints for the recently completed expansion leave space for a mirror-image system.

