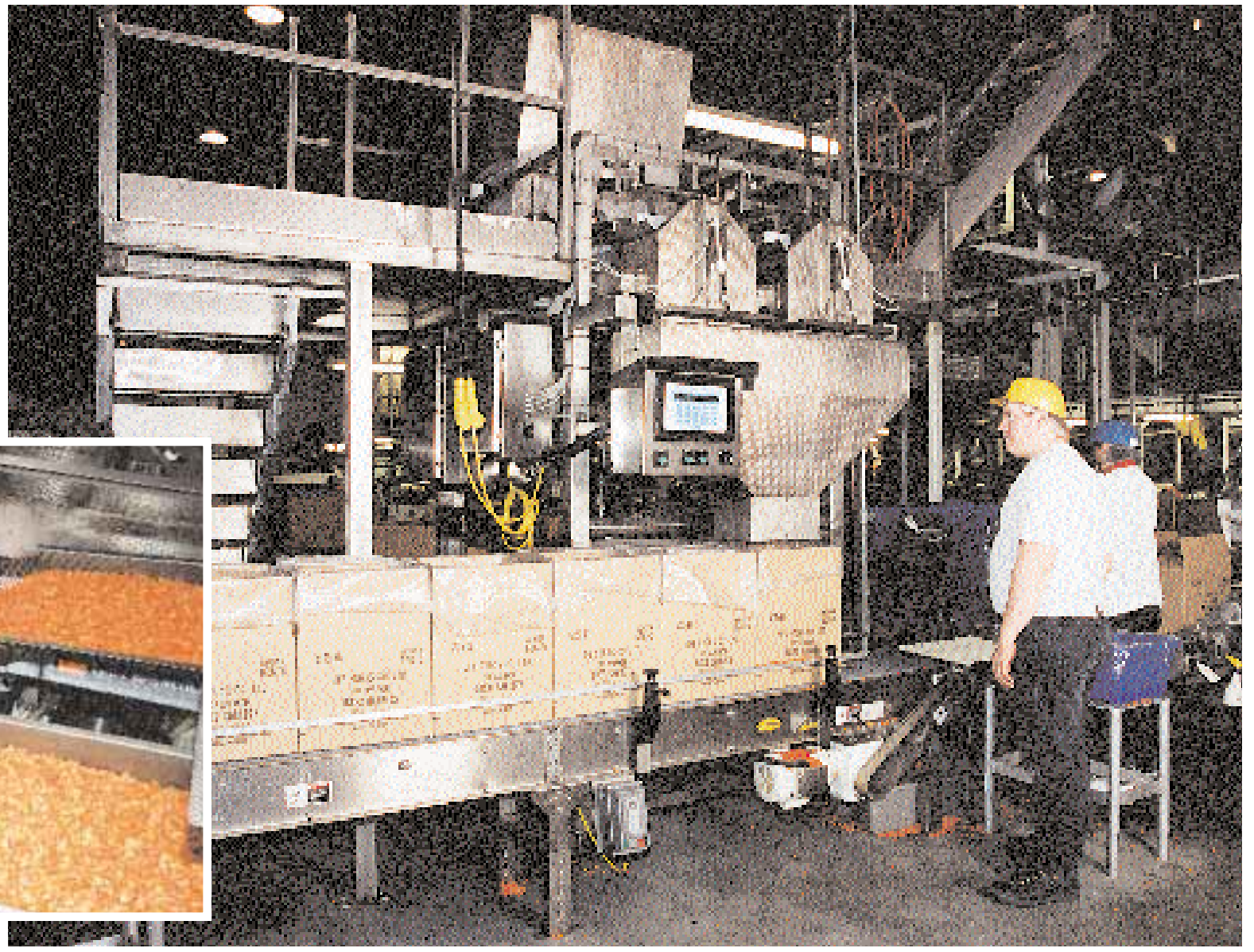

IQF carrots, below, are transported to the new automatic net weigh machine, where they will be weighed and then packaged, right. The vibrating trays for transport, alternating filling hoppers and the inter-locking conveyor offer clean, continuous high volume packaging.

Filling veggies in volume

High-volume bulk net weigher/filler speeds the filling process and ensures accuracy for National Frozen Foods Corp., a northwest packer of individually quick frozen vegetables for foodservice giants such as Sysco and Alliant.

Steve Ennen, Senior Associate Editor

High volume harvest requires high volume packaging for one northwestern frozen foods processor/packager. National Frozen Foods, Corp., Seattle, WA, processes and packages frozen vegetables of all kinds: peas, corn, carrots, green beans, lima beans, and several combinations therein. The privately owned company, in business for nearly a century, has evolved over the years from canning vegetables to one of the nation's top suppliers of bulk frozen foods to national and international customers. The private label packer sends vegetables to Sysco Corp., U.S. Food Service, Alliant, and Food Service of America among others, all in high quantity. There are four different processing facilities working in the northwest region. Three of the four include on-site packaging facilities. The combined four facilities—Chehalis, WA; Albany, OR; Burlington, WA; Moses Lake, WA;—process about 300 million pounds of frozen vegetables per year. The Chehalis site leads the pack, processing and packaging some 135 million pounds of frozen vegetables per year.

Although the company has been packing individually quick frozen (IQF) foods for some time, it recently found demand was exceeding its aging packaging equipment. As part of an overall solution to their growing demand, National Frozen Foods sought out a new line of high-volume packaging equipment in Chehalis. Part of that increase included the recent addition of a newly designed AWC 350-HiVol automatic net weigher/filler from Powell Systems, Inc.

"We have been packing [frozen foods] for many years, but the equipment we used became antiquated," explains Vernon Hawks National Frozen Foods Corp.'s packaging manager. "In the last two years, we have put in an automatic case erector, automatic bag inserter and, last June, the Powell machine. This is a very automated line now and the Powell machine allows us to run our free-flowing items on top of it and achieve very high production rates."

National Frozen Foods Corp. has designated the AWC 350-HiVol for packaging the bulk loads from 20- to 55-lb on its IQF packaging line. Or, for its overseas exports, the net weigher/filler handles 10- to 25-kg cases.

Hawks adds that the dependability of the net weigher/filler maintains the continuous production needs of the frozen foods packager.

"It's helped lower our costs and increase our average production," continues Hawks. "There is the key to our

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Special high volume hoppers and vibrating trays, pictured above the operator, were requested by the frozen food packager to ensure the smooth progress of the frozen vegetables.

volumeveggies

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production. It's not necessarily that you can get a super high [quantity] day, but we have to have constant flow of product. What the Powell has done for us is help increase production and lower the giveaway. Our antiquated scales that we used before would have possibly given us an overage of up to a half-pound over."

The new net weigher/filler, he says, keeps that overage considerably less and eliminates line slowdowns due to filling overages. In the former system, employees would be dedicated to gleaning overages from the filled cases, preventing employees from performing other tasks.

"Between the fact that you had an overage and you were slowing down [the line] to get the desired target weight, you would lose speed or lose product," explains Hawks. "The new machine meets the target weight with less than an ounce overage for twenty pounds."

Out of the fields

Freshly harvested vegetables are bought out of the fields, taken to one of the four processing facilities and cleaned. Freezing tunnels carry the vegetables down to the bulk packaging station and load them into 1500-lb tote bins that are taken to the appropriate packaging line and emptied. The vegetables are cleaned and inspected again.

A Wexxar carton erector simultaneously sets up the regular slotted corrugated cases from Smurfit-Stone, Longview Fibre and Boise Cascade, setting the bulk packaging lines in motion.

An O/K International bag inserter then places a .75-mil high-density polyethylene (HDPE) into the erected cases as they move down the long-existing conveyor. The low gauge HDPE bags keep material costs down and still offer product protection.

In the mix

Several characteristics of the net weigh/filler were adjusted for National Frozen Foods' needs.

Special hoppers were created for the intake to handle the high quantities of the vegetables.

The HiVol also features dual scales with vibratory trays, which Hawks says, his company had been seeking as part of a new filler. Hawks says his company had been approaching Powell Systems to develop such a machine.

"We have been searching for a machine that could give us the production we desired for about four years." explains Hawks. "We wanted vibratory trays because of cleanliness and ease of maintenance. This first [Chehalis] machine was built for us and since we started using it, one of our other facilities has bought one."

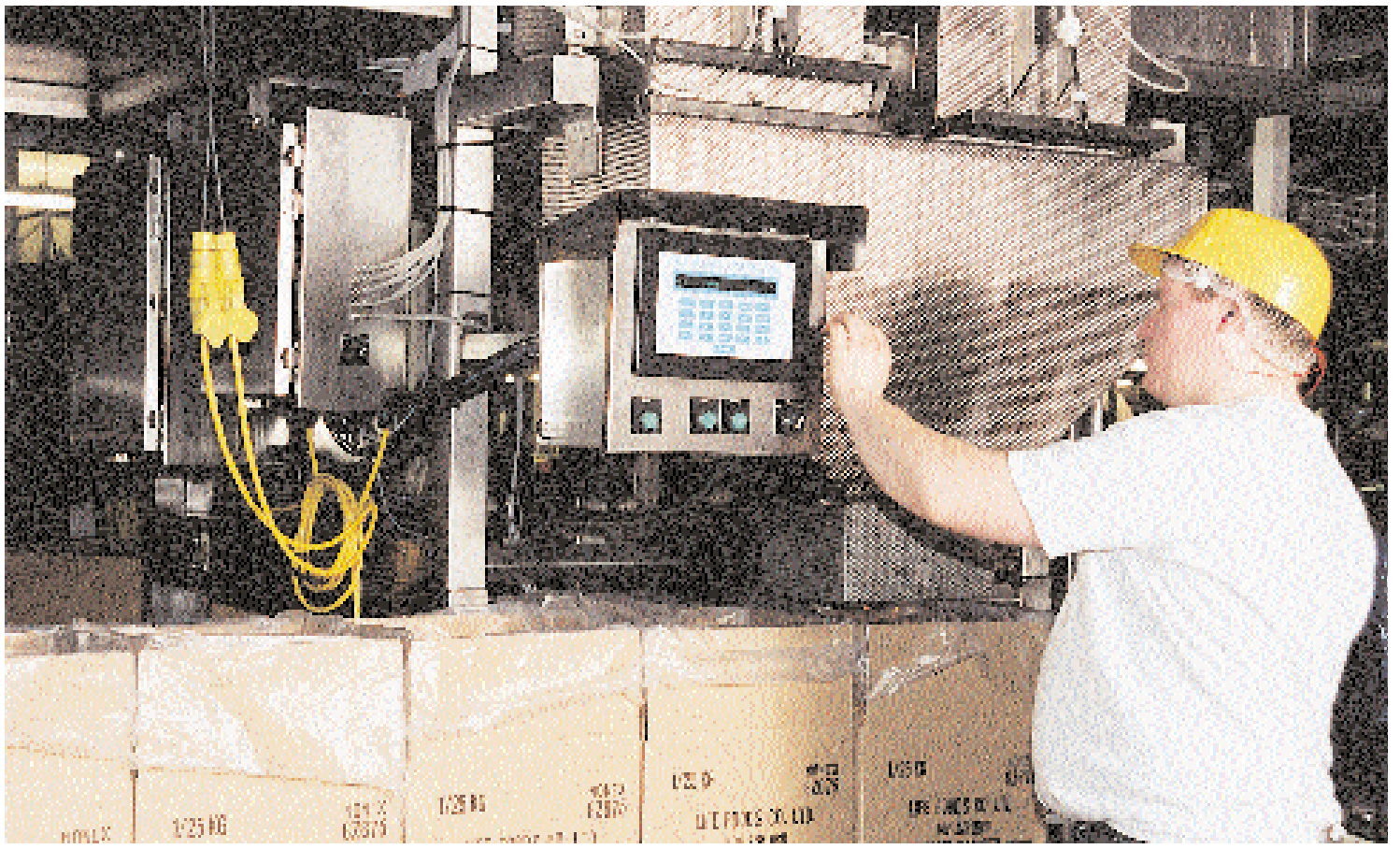
Once the product drops into the hopper, it goes into two Eriez vibratory electron-magnetic trays. They feed to what Hawks refers to as bulk and dribble trays that fill weigh buckets. As the product comes out of the bulk and dribble vibrators it goes into the scale that then sends it to a fill hopper feeding it to the case.

"We need trays that are easily cleaned and easily maintained. That has been a really good aspect of the machine for use. These are very easy to clean, very open and easy to get to." The two weigh buckets fill alternately—as one dumps the other is filling. The index conveyor, with inter-lock belting steadily, brings the cases offering continuous flow for the filling station.

"What the Powell machine has done for us is help increase production and lower the giveaway," says Vernon Hawks, packaging manager.

"With our product, if you use a live rubber belt and the product gets underneath you have made a real mess," explains Hawks. "With this inter-lock belting, if we do spill some product, for whatever reason, it does not cause any problem in production and is easily cleaned."

The fast clean up of the vibratory trays and the inter-lock belting helps with the overall changeover which is accomplished in short order throughout the line. A touch screen panel on the net weigher/filler changes the parameters of measurements for the vegetables and some mechanical changes in the indexing belt are all the company needs to shift from one frozen product to another.



An operator controls the volume and speed of the machine that takes the characteristics of the frozen vegetables into account. The new high volume machine can be programmed ahead of the run and controlled from the panel.

Programs are logged in the touch screen panel for each variety of vegetables or case quantities. One operator can handle the bulk packer per shift. The company generally runs the machine at 14 cases per minute, but Hawks says it can reliably move to 18 cases per minute on 20-lb cut corn.

"We really don't shut down this particular line," explains Hawks. "When we start it in the morning we keep it running for 17 hours a day, unless we have a changeover we need to make, then we try to put that around a break or lunch time."

Measurements off the HiVol are confirmed down then line on a Ramsey checkweigher, but Hawks says, there is seldom any discrepancy.

The filled bags are then manually closed, allowing for an added element of quality control and the case is then sent through a home-made case closing apparatus that National Frozen Foods built this year using Singode tape heads and tape.

New Marsh ink-jet coders code each case with product information. Hawks says that soon the company will be adding bar code capacity.

From there, the cases go to a Columbia FL100 automatic palletizer. Hawks says the palletizer has also lowered labor costs and speeds production rates by keeping pace with the new net weigher/filler. Each machine on the line operates on a separate programmable logic controller and is prompted into action by a concert of various sensors as the cases move down the line.

Pallets are then manually stretch-wrapped before being shipped across the globe.

More Information is available:
Net weigher/filler: Powell Systems, Inc., 330/759-9220, Circle No. **324.**
Carton erector: Wexxar Corp., 630/983-6666, Circle No. **325.**
Tray vibrators: Eriez Magnetics 800/345-4946, Circle No. **326.**
Bag inserter: O/K International, Plastics & Packaging Div., 800/521-2908, Circle No. **327.**
Ink jet coders: Marsh Co., 800/527-6275, Circle No. **328.**
Corrugated cases: Smurfit-Stone Container, 314/537-4100, Circle No. **329.**
Corrugated cases: Boise Cascade: 503/364-2216, Circle No. **330.**
Corrugated cases: Longview Fibre Co., 213/725-6150, Circle No. **331.**
Strapping machine: Signode, 708/724-6100, Circle No. **332.**
Checkweigher: Ramsey Technology Inc., 612/783-2500, Circle No. **333.**
Palletizer: Columbia Machine, Inc., 360/694-1501, Circle No. **334.**