

# Morgan Foods Goes Hydrostatic™

By Dave Mathieu

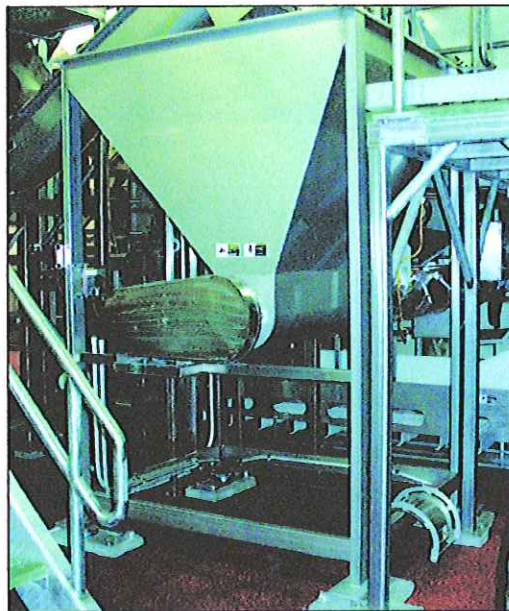
*Hydrostatic load cells solve scale failure problems at Morgan Foods.*

**M**organ Foods, located in southern Indiana, is one of the nation's largest privately owned food-processing companies in the United States. Founded in 1899, the company is a national leader in private-label soups, offering a wide assortment of emulated brands and unique signature flavors.

To stay competitive in the field of food processing, Morgan has kept abreast of the most modern production equipment available and continues to upgrade its machinery annually. The processing line includes eight different cook decks. Along with cooking kettles, each deck is equipped with tanks and weigh feeders that are mounted on load cells. The tanks vary in size from 500 to 1,000 gallons each.

"We are totally dependent upon the load cells working correctly," said Cory Lytle, director of engineering at Morgan. "It costs us thousands of dollars if we have to dump a whole kettle of product and start over from scratch because the batch was weighed incorrectly. When we were using electronic load cells, it was almost a daily thing to change out a cell. I can't remember a week to go by that there wasn't at least one load cell problem somewhere in the facility."

In 1999, while visiting a pet food processing facility, Lytle mentioned in passing about the problem that he was having with their electronic load cells. The maintenance manager told him about how they solved that same problem by going from electronic to hydrostatic. "So we contacted Emery Winslow, and they pointed



*A lose-in-weight hopper scale is used to measure dry ingredients in a batch. It is mounted on four Emery Winslow hydrostatic load cells. An auger feeds ingredients onto a take-away belt that feeds the mixer.*

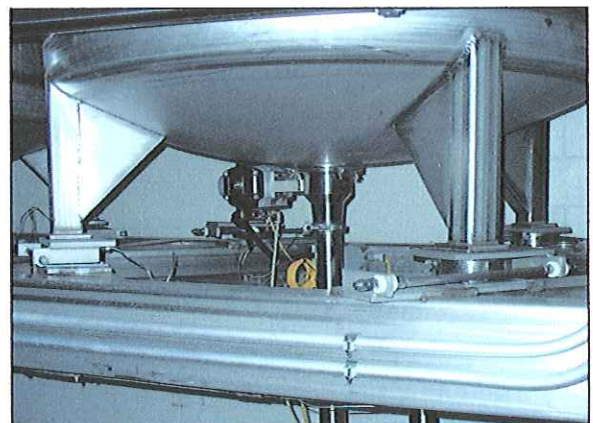
us to Valley Scale, the rep for this local area," said Lytle.

Not completely convinced that the hydrostatic system would be a panacea for their problem, Lytle invited Valley Scale to take a look at his weighing needs. Arlis Guffey, president of Valley Scale, offered a deal he couldn't pass up. He put a set of hydrostatic load cells in one of the lines for a 30-day free trial. If that didn't solve their load cell problems, he would remove them at no charge. "We have very harsh applications as far as the washdown procedure, and it's really hard for us to keep moisture out of all the summing boards and components required for the

electronic load cells," said Travis Smith, electrical supervisor for Morgan. "These hydrostatic load cells proved to be the answer for our application. We've since retrofitted 30 tanks, weigh feeders and other handling systems with the hydrostatic scales."

## An Effective Solution

The term hydrostatic reflects that there are no pumps or reservoirs, and there is no movement of oil. A weight applied to the cell creates a pressure signal which is transferred through the oil via the capillary tubing. This pressure signal is sent to the control panel where it is converted to a millivolt signal by a summing totalizer. This device produces millivolt signals for operation of standard digital controllers and indicators. Since hydrostatic scales are electrically inert, they are risk-free of damage by many of the elements that cause electronic load cells to fail. They were the ideal solution to Morgan's load cells problems.



*A close-up view of a hydrostatic load cell on a tank scale.*



Morgan Foods started retrofitting their tank scales in 2000. So far the tanks and weighfeeders on six cook decks have been converted to hydrostatic. The retrofit, according to Matthew Guffey, vice president of Valley Scale, was quite simple. There were no modifications required of the tanks to accommodate the hydrostatic load cells. "We just cut the old electronic load cells out, ground out the old grout, set the new hydrostatic cells in place, poured the grout, and it was good to go," he said. "It probably took longer to cut the bolts from the old cell than it did to get the hydrostatics set up."

The success of the hydrostatic systems has been unquestionable for Morgan. Both Lytle and Smith admit that they now opt for hydrostatic every chance they get. There are only a handful of electronic load cells still left, and they are on some of the older cooking decks held in reserve for emergency use. "We are looking at new applications that have never used load cells because of the reliability we are getting with the hydrostatic systems," said Lytle.

One example of this was the high capacity flowmeters, which were part of the newer cooking decks. They found that they could replace these systems with hydrostatic scales since the reliability on some of the flowmeters versus the consistency of product they were running didn't prove to be as accurate as weight. "We found they weren't necessary for adding multiple ingredients so

we quit using the flowmeters entirely and now use nothing but the hydrostatic weigh systems because we have less problems with them," said Smith.

According to Lytle, they are looking at applications where they are using level probes or pressure transmitters to measure level inside tanks and looking at how they can change over to hydrostatic load cells for these applications. "We're looking at areas where in the past we would have never considered weighing because of the reliability and accuracy we've been getting with hydrostatic scales," says Lytle.

As far as Morgan Foods is concerned, the hydrostatic scales are high on durability with no sacrifice to accuracy. Surely there must be a downside? "Little or none," says Smith. "There are a few applications that are pretty brutal to the equipment where we've had to make some adjustments. But since we installed the first hydrostatic load cells, we have only replaced five or six out of approximately 120 cells. And that was just a matter of rebuilding diaphragms; it wasn't like they were totally damaged. Learning to do what we needed to prevent that from reoccurring was our problem, not any problem with the load cells."

Lytle told us that while hydrostatic load cells are initially more expensive than electronic, they found them to have a very low cost of ownership. They no longer have to replace load cells every week, and dumping soup

batches due to inaccurate weights is a thing of the past. Morgan runs about 30 batches per day on each of its cooking decks, so there are major savings in reliable and accurate weights.

Another significant advantage in hydrostatic scales, according to Smith, is that calibration is so much simpler. The set of load cells on a tank tie back to the summing totalizer. If one of the cells is off, it is simple to calibrate, unlike electronic cells where summing boards may be damaged and technicians would have to trace through all its circuitry to find the problem.

According to Lytle, they have been really pleased with the hydrostatic technology and plug it to upper management every chance they get. "If it were up to us, we'd have all of the electronic load cells replaced right now with the hydrostatic cells," he says. "It is not budgeted, but we'd surely like to do that."

#### Resources

Valley Scale Company was responsible for installing Emery Winslow hydrostatic load cell systems at Morgan Foods. The company also maintains and calibrates scales and other measurement devices for Morgan. Contact: Matthew Guffey, Vice President, Valley Scale Company, 751 W. Kenwood Ave., Clarksville, IN 47129. Phone: 812/282-5269; Web Site: [www.valleyscale.com](http://www.valleyscale.com)

## Never Again Replace Your Load Cells!

**LIFETIME GUARANTEE AGAINST WATER AND ELECTRICAL DAMAGE**

• Tank & Hopper scales • Floor scales • Truck & Track scales

**CANNOT BE DAMAGED!  
BY HEAVY WASHDOWNS OR POWER SURGES**

• HIGH ACCURACY • HIGH CAPACITY

Nationwide Sales and Services



**Emery  
Winslow**  
SCALE CO.

73 Cogwheel Lane • Seymour, CT 06483 • (203) 881-9333 • Fax (203) 881-9477  
E-Mail: [homeoffice@emerywinslow.com](mailto:homeoffice@emerywinslow.com) • Visit us at [www.emerywinslow.com](http://www.emerywinslow.com)

Brochure #WM11/08