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How Odom's Tennessee Pride Used Emery Winslow Hydrostatic Load Cells to Stop Scale Failures

"Hydrostatic scales have been one of the most exciting investments that we have made in our plant". So says Jim Stonehocker, Chief Operating Officer of Odom's Tennessee Pride, a family owned sausage manufacturer with plants in Arkansas, and Tennessee. "We could not keep our electronic load cell scales operational, and as a result, we could not get reliable yield numbers. Scale troubles were a major and constant topic of conversation. That issue has totally disappeared since we installed the Hydrostatic scales."

Accurate and dependable scales are critical to this pre-rigor processor, manufacturing high quality pork products for the retail and food service markets. Their product line includes sausage links, patties, sandwich items, appetizers, and great sausage gravy. Meat and food processors know that their in-plant environment is very tough on electronic components, like scales.

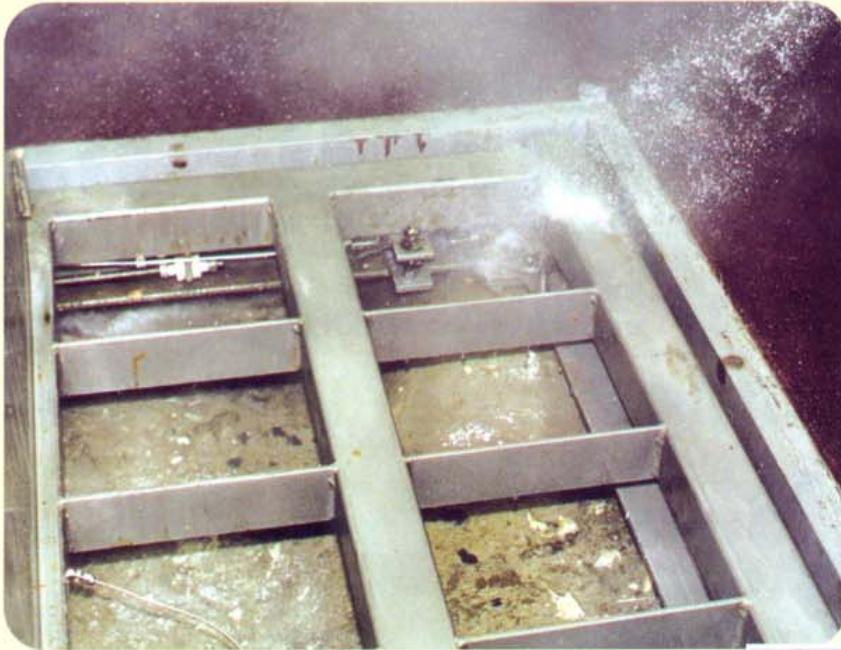
"Water penetration of the load cells is the biggest culprit," says Jim McConnell, plant manager for



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Odom's largest facility in Little Rock, Arkansas. "Our sanitation crew hoses down with 160 degree water at up to 600 PSI. In my 30 years in the meat industry, I have not seen electronic scales function very well, or for very long, under those conditions. We were always losing load cells, and having prob-



The high-accuracy pressure signal is simply transferred through the fluid, to the conversion enclosure. Therefore, there are no pumps or reservoirs of any kind with a Hydrostatic system, making it even more reliable than the brakes in your automobile. The small amount of fluid makes them very temperature stable as well. An entire truck scale, with eight Hydrostatic load cells and 500 feet of tubing, uses only about a pint of oil.

Odom's replaced their electronic cells with Hydrostatics under several mixers and augers almost two years ago, with dramatic results. "We had horrendous scale repair bills," says Stonehocker. "The scale service company was constantly at our facility, and we still couldn't get the results we needed for accurate yield reports." Meat plants must have accurate and dependable scale weights to provide the checks and balances of the operation. "The Hydrostatic scales gave us the process control that we couldn't get with the electronic scales," adds Stonehocker. "The weights are right, and reliable, and that information is invaluable."

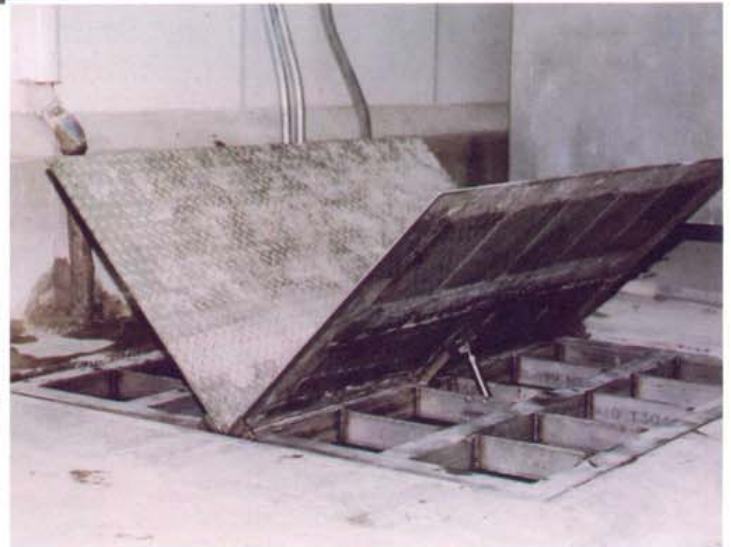
Frank Howell, Odom's Director of Manufacturing Development agrees. "Water is our worst enemy, and the scales were a major source of headaches. The Hydrostatic scales have significantly changed the focus of the things we would fight on a daily

lems getting good weight readings."

Emery Winslow Scale Company's hydrostatic load cells are non-electronic, and **totally immune to water and electrical damage**, including hose-down, flooding, submersion, condensation, power surges, welding surges, static charges, and even lightning in outdoor hopper scales and truck scales. The manufacturer offers a lifetime guarantee against damage from these elements. These characteristics make them ideal for the harsh environment of a meat processing plant.

Hydrostatic cells operate on a thin film of oil, as little as .030 inches thick in some models, transferring a high-accuracy pressure signal to a totalizer (summing transducer) in a remote Nema 4X enclosure. This is done through grade 316 stainless steel capillary tubing, only 1/8 inch diameter but infinitely stronger than strain gage cable. The totalizer sums the pressure signals and produces a single millivolt output, for operation of standard digital weight indicators, printers, and computer controls. All vulnerable electronic components are housed away from the harshest environment, in protective enclosures or control rooms.

There is actually no movement of the oil in this closed-loop system, hence the term "Hydrostatic."



"The Hydrostatic load scales gave us the process control that we couldn't get with electronic scales."

- Jim Stonehocker,
chief operating officer

basis. Our scale issues have disappeared, and it has definitely helped us improve our process. A lot of that previous effort spent on scale problems now goes into making good products for our customers". Frank was the previous plant manager, and remembers the frustrations he faced. "The cost of operating and maintaining these scales has changed dramatically."

Odom's typically makes their sausage products in 2,100 pound batches, and they use pre-arranged spice packages, designed for those batch sizes. If the scales are not functioning right, and there is actually more or less than 2,100 pounds in the mixer, then

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- Jim Stonehocker,
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"We are considering retrofitting our truck scale with Hydrostatic load cells, because we have lost numerous electronic cells to lightning."

- Jim Webb,
maintenance supervisor

the ratio is wrong. "We don't want to over-spice or under-spice our products", says Jim McConnell. "We want to use exact spice blends to get the right consistency. We can't do that if the scales are wrong."

Equally important, says McConnell, is the calculation of yield on a daily basis. "With the electronic scales, we could have inconsistencies in knowing what our bone and meat weights were, because we get our first yield data from the kill floor." If the weights were off 100 pounds per blend, all day long, it would look like they were either beating their yield targets, or coming up short, depending on which way the scales were off. "There was no way to judge if we were doing a good job or bad job in our operations, from kill to formulation," he adds. "I couldn't be happier with the information and consistency that the new scales have given us."

Jim Webb has been at the Arkansas plant for almost eight years, and is the second-shift maintenance supervisor. He also spent a couple of years as a scale technician "in an earlier life," and knows about load cell failures. "It is so easy to pinch, puncture, or nick a load cell cable," he says, "and once you do that, it is just a matter of time before the water will get into that cable and into the cell causing a failure. It was like setting a timer. Within a month at most, we would be replacing that load cell, even the quality hermetically sealed ones."

Odom's also purchased an above ground Hydrostatic floor scale, as well as a model 709 pit scale for the Arkansas facility. Most electronic pit scales need to be raised completely out of the pit with a hoist or forklift, or the deck plates need to be unbolted and removed. In addition to the time and effort expended, there is also a greater danger of injury to personnel, and potential damage to the scale. To solve these issues, the model 709 has an airlift feature for easy cleaning. At the turn of an air-valve, both halves of the scale deck plate are raised by pneumatic cylinders, like butterfly wings, to about 45 degrees, exposing the entire understructure of the scale and the pit for total cleaning access. "This is one of the most impressive features that I have seen in a scale," says Webb. The model 709 never needs to be lifted out of the pit, and there is no place for waste product to hide. "The sanitation people love it," he adds.

Cleanliness and ergonomics are no small matters in a food plant. Above ground scales can be trip hazards or get hit by equipment, but pit scales are hard to clean and water will get to the load cells more quickly. The model 709 pit scales solve both problems. "Anytime you can improve safety issues, or make a process simpler for people to work with, it's better for your operation," states Frank Howell. "If there is accessibility, it is far more likely that the cleaning work will be done correctly." Since the load cells are hydrostatic, they are in absolutely no

danger of failure even if the pit drains would back-up. The cells will operate without damage indefinitely, even when totally submerged for extended periods of time. Since the load cells are fully constructed of grade 304 stainless steel, they can handle the caustic cleaning solutions as well.

How does Odom's Chief Operating Officer justify the higher purchase price of the Hydrostatic scales? "The best is not necessarily the cheapest up front",



says Stonehocker, "but consider cost of ownership. We went over our old repair bills, and our savings have more than paid for the new scales". Jim McConnell agrees, "You must look at the money we haven't spent on these scales since they were installed, the accuracy of the data we get out of it, and the savings of time and effort on the part of the maintenance department. If you add that up, in a years time it's cheaper than buying the cheapest scale on the market."

Keeping scales in calibration is another challenge for processors. A scale that is out of calibration has been called "the silent thief" because it is either cheating you or the customer. Hydrostatic technology has advantages here as well. The pressure output of each load cell results from a fixed machined surface area, so there is far less reason for these scales to go out of calibration. "We put test weights on the scales every morning," says Jim Webb. "I only needed to make one minor adjustment on a couple of scales over the past year."

McConnell recalls the troubles with the electronic scales. "We would make adjustments every morning and they would often go out of calibration during the day. Sometimes we could do a better job of filling the mixers by eye, than by using the scales."

Webb says the impact of these new scales has been overwhelming. "Even with a higher purchase price, it's a no-brainer. I cannot imagine why anyone wouldn't consider this technology for his or her operation. We are considering retrofitting our truck scale with Hydrostatic load cells, because we have lost numerous electronic cells to lightning". Frank Howell agrees, "People need to look at the benefit. These scales have definitely been worth the money

we spent on them. The experience we've had has been very positive, and we are planning more purchases".

"We are excited about the future," says Jim Stonehocker. "We have aggressively invested in our business over the past six years, with three plant expansions, a new kill floor, and a new cook/freezer line. We want to lead the industry in new technology, and the new hydrostatic scales we purchased are part of that effort." Jim wants to share this informa-

tion with other processors. "I love to talk about technology that works this well, and delivers what it promises," he says. "This equipment has gotten us out of trouble, and others in our industry should be using this technology to get control of their operations."

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