PROCESS INSTRUMENTATION

Tomato processor **improves plant efficiency and productivity**

using Siemens WD600 belt scale on existing conveying systems

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Challenge
A tomato processor located on the Pacific Coast of the United States uses the latest technologies in peeling, dicing and packaging tomatoes. They were preparing to replace some of their older weighfeeders because of declining performance. One of their main concerns with installing new weighfeeders was the cost of moving the existing conveying systems in order to accommodate new equipment.

The customer had also installed new steam peelers to replace their older ones, and they wanted to compare the efficiency of the new peelers against those they had just replaced. However, without being able to calculate the weight of the tomatoes before and after the peeling process, it would be very difficult to see if the new peelers were truly more efficient. It was also hard to figure out how to improve the process in order to reduce product loss during the peeling process.

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Solution
Siemens WD600 belt scales were installed on the customer's existing conveyors that transfer the tomatoes into the plant before and after being peeled. By using the WD600 belt scales with high-accuracy stainless steel load cells, the customer was able to get an accurate weight of the tomatoes as they were moving along on their existing conveying systems. As the Siemens belt scales demonstrated a verified accuracy of better than 0.5% after performing several material tests, the customer was able to trust the equipment and use the values reported by Siemens BW500 integrators to calculate the efficiency of the process.

A WS300 speed sensor was employed to provide a digital signal transmitted as speed input to the BW500 integrator for calculation of belt speed, flow rate and totalized weight. This allowed the customer to achieve even higher accuracies.

The Siemens belt scales were installed on different lines to weigh the tomatoes coming into the peelers, and then weigh the tomatoes again after coming out of the peeling process. By calculating the total weight difference, the customer could now easily calculate process efficiency.

Benefits
Time savings: The customer had older weighfeeders that were removed because of their declining performance. Siemens was able to offer a more efficient solution by using the WD600 belt scales. This was attractive to the customer because it allowed them to install the Siemens scales on their existing conveyors without needing to change or modify the belts.

Cost savings: The cost of the new belt scales was less than half of the cost of replacing the entire weighfeeders.

Reliability: Siemens belt scales come with 50 years of product design and experience in tens of thousands of installations across the US and around the world.

Local support: The customer appreciated the service of an experienced field engineer who was able to go out several times during the installation for recommendations, programming and material tests. Installation included startup and programming.

Quick and easy setup: The ease and simplicity in programming the Siemens BW500 integrator provided a trouble-free way for the customer to stream their rate values into a PLC, allowing them to trend the rate of tomatoes being processed through different peelers.

About the WD600 slider bed belt scale
The Siemens WD600 belt scale is a light- to medium-duty slider bed belt scale used for process and load-out control in manufacturing, including the food, chemical and tobacco industries. It works with an existing flat belt conveyor, a selected Siemens integrator and a speed sensor.

BW500 belt scale integrator

WD600 belt scale

As material is moving along the conveyor belt and travels over the belt scale, it exerts a force proportional to the material load through the suspended weighbridge to the load cells.

About the BW500 integrator
The Siemens BW500 full-feature integrator is used with both belt scales and weighfeeders. It operates with a belt scale and a speed sensor. Belt load and speed signals are processed for accurate flow rate and totalized weight of bulk solids.

The BW500 integrator can take on lower-level control functions traditionally handled by other devices, and it supports popular industrial communication buses. Its patented load cell balance function eliminates matching load cells.

About the WS300 speed sensor
The SITRANS WS300 speed sensor is a low- to high-resolution shaft-driven instrument that operates in conjunction with a conveyor belt scale, providing a signal to an integrator that computes the rate of material being conveyed. At only 2.68 lbs (1.22 kg), it is one of the lightest and most durable units ever developed for monitoring conveyor belt speed. With its rugged cast aluminum housing, it is suitable for outdoor installation, and its low weight prolongs bearing life.

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