

Case Study

Rate Control

Solution for diaper manufacturer exceeded expectations with 0.5% accuracy in production

Challenge

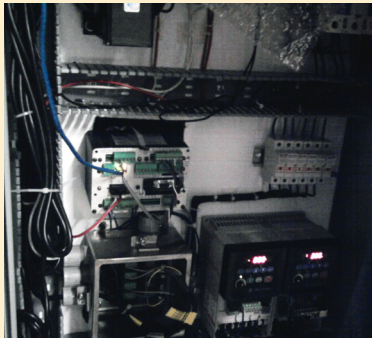
- Achieve accuracy in amount of pellets being applied to product
- Improve controls performance
- An open system with faster application rates
- Reduce downtime; local support

Solution

- HI 4060 Loss-in-Weight Rate Controller
- Hardy ADVANTAGE® load cells with C2® Electronic Calibration
- Hardy Junction Box

Results

- Achieved dosage accuracy of 0.5%
- Exceeded the performance level desired
- Better quality control and less down time



THE CHALLENGE:

A diaper production facility was regularly experiencing problems with their feeder system including inaccuracy in the amount of super absorbent pellets the feeder was applying to the diapers during the manufacturing process. "Our current closed system is slow and not very precise and we need something that can apply pellets faster," says the plant engineer. In addition, due to the inaccuracies they were experiencing, they frequently had to place service calls and their expectations for service were not being met. Delays in service response were causing extended down time and slowing production. The customer wanted to improve controls performance, weighing accuracy and service response.

THE SOLUTION:

The diaper manufacturer was seeking an open system solution that would allow them connectivity to their existing Rockwell Automation® PLC platform. They had talked to Hardy Process Solutions while at a local trade show and called upon Hardy to propose a solution. Based on their need for material to be continuously flowing at a precisely controlled loss-in-weight rate and a central PLC to control the flow rate setpoints, Hardy recommended its HI 4060 loss-in-weight rate controller, a three-piece load cell set, a junction box, and Hardy's C2® cable. The HI 4060 comes with a Secure Digital Memory Module (SMM-SD) card which automatically stores configuration data for easy transfer or data.

The diaper manufacturer replaced the two VFD and DC motors for AC motors and drives. They removed the closed electronics and made a panel with a Hardy HI 4060 panel mount rate controller, leaving the actual mechanics in place. The customer also replaced their existing load cells for Hardy's ADVANTAGE® load cells for two reasons:

- 1) The ADVANTAGE load cells are a matched strain gauge load cell that provides increased accuracy and lower unit costs.
- 2) The ADVANTAGE load cells come with C2 Electronic Calibration which allows for accurate calibration without the need for test weights. Though not a large vessel, the layout of this production facility and access to the equipment, does not allow for easy use of test weights, making C2 Electronic Calibration ideal for this environment.

THE RESULTS:

With installation of the HI 4060 loss-in-weight rate controller, this diaper manufacturer obtained the open system and performance they desired, experiencing a dosage accuracy of 0.5%. The user friendly rate controller, web browser functionality, connectivity and mapping provides the system operator with better access to the system along with more information about the process than they were previously receiving. This allows them to better determine if adjustments need to be made to the process. "We are very pleased that we are now achieving the accuracy desired," says Quality Control regarding the amount of super absorbent pellets required to manufacture the high-quality diaper they strive to produce. In addition, they have better quality control and less down time due to local Hardy support, allowing them to stay on target with production.

EQUIPMENT USED:

Matched stainless hermetically sealed ADVANTAGE® load cells for better accuracy. HI 4060 controller, C2® cable and Hardy junction box.

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