

# California Paperboard Improves Basis Weight Control with High-Signal DC Magmeters

## RESULTS

- Reduced process downtime
- Increased product quality
- Reduced scrap and raw material costs
- Increased process control



## APPLICATION

Basis Weight Control

## APPLICATION CHARACTERISTICS

3-4% pulp stock flow to the paper machine

## CUSTOMER

California Paperboard - Santa Clara, CA

## CHALLENGE

California Paperboard operates two machines. The first is a fourdrinier that makes 26-lb. recycled corrugating medium. The second is an eight cylinder machine that makes various grades of recycled box-board. In the past year, the mill increased manufacturing flexibility and maximized production through two key improvements: a new Distributed Control System (DCS) and the installation of Rosemount High-Signal Magnetic Flowmeters.

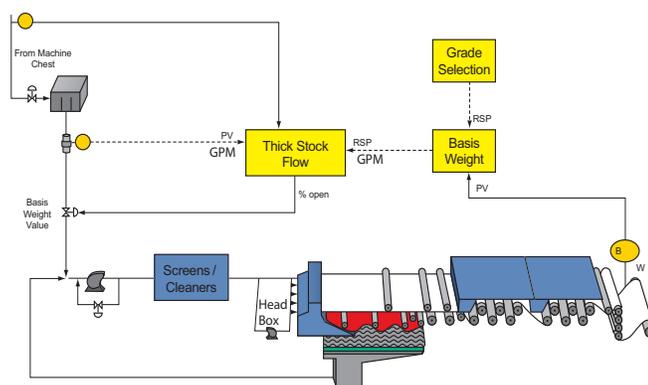
Previously, basis weight on the fourdrinier machine was controlled by an AC magnetic flowmeter. This sent a feed forward signal to the dryend scanner system. However, something in the process caused the magmeter to generate periodic signal spikes. These forced the control system to forfeit command of the basis weight valve.

The cause of the signal spikes could not be isolated, even though many different possibilities were investigated. Signal Spikes were costing \$90,000 to \$180,000 a year in lost production and wasted raw materials. In addition, automatic control was disabled, product inconsistency increased, and a half-hour of production was lost with each episode.

Before installation, the only way stock flows could be determined was by measuring threads on the valves. Operators looked at each vat and opened or closed valves based on sheet formation. Stock flow was increased or decreased based on their observations.

**“Signal Spikes were costing \$90,000 to \$180,000 a year in lost production and wasted raw materials.”**

**Steve Blankenship**  
Plant Manager



*Basis Weight production model*

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### SOLUTION

California Paperboard noticed a significant improvement in flow measurement after they installed a Rosemount High-Signal magmeter system. The output was more stable, and advanced digital signal processing allowed the system to filter out the spikes that had previously caused lost production.

Now, control of the basis weight valve is never lost since the flowmeter does not generate signal spikes.

In addition, the High-Signal magmeter has improved product quality on the fourdrinier line, making it more consistent. For example, basis weight variation was reduced from  $\pm 4$  lbs to  $\pm 1$  lbs—a 75% reduction in the two-sigma spread. As a result, cull was reduced and customer satisfaction was improved.

In light of the substantial benefits realized on the fourdrinier machine, eight High-Signal Magnetic Flowmeters were installed on the cylinder machine. These resulted in the highest, most consistent product quality ever achieved on that machine. Operator productivity and working conditions also have improved since the High-Signal Magnetic Flowmeter units were installed on the cylinder machine.

With the flowmeters and DCS in operation, operators now control the process from their workstations; they no longer have to open and close valves manually. As a result, they have more time to use diagnostic tools and learn how to use all of the information now available to them. There is also more time to watch the machine and find ways to minimize downtime, improve product quality, and maximize production.

“The engineering supervisor, with no previous experience, installed the first High-Signal magmeter in an hour and a half - using only the instruction manual. Once it was installed, signal spikes were no longer a problem, and the process could be controlled automatically. Our engineers like to work with the new magmeters because they're easy to use, configure, and understand.” said Steve Blankenship, Plant Manager

**“The new magmeters significantly contributed to the success of a larger process improvement project.”**

**Steve Blankenship**  
Plant Manager

### RESOURCES

#### Emerson Process Management Pulp & Paper Industry

<http://www2.emersonprocess.com/en-US/plantweb/customerproven/Pages/PulpPaper.aspx>

#### Rosemount High-Signal Magnetic Flowmeter System

<http://www2.emersonprocess.com/en-US/brands/rosemount/Flow/Magnetic-Flowmeters/High-Signal-System/Pages/index.aspx>

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