

MAHLO CASE STUDY:

Mahlo Scanners Keep Monadnock At Its Peak

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Capacity for Change Enables Endurance as This Mill Celebrates Centuries of Success

It's exciting to engage a company that embodies two centuries of private ownership and a literal mountain of prestige as both a papermaker and an environmental steward.

If you know the brand name Monadnock Paper Mills you may also know how hard they work to pay homage to the endurance of their namesake mountain in Southern New Hampshire, as well as that of the people of Bennington. They began making paper here after the War of 1812 *US Embargo Act* cut off English paper supplies. Fine paper has been continuously crafted at Monadnock ever since — longer than any other paper mill in the US.

Times change, paper composition changes, and Monadnock changes to meet customer needs. So when the mill asked three companies to propose a better gauging system for their converting line, Mahlo America's experts were eager

to propose their advanced technology to answer the needs of such a prestigious and storied company.

Three decades ago, Monadnock installed a 60-inch line to produce one- and

two-side coated paper, card, and paperboard stock with basis weights ranging from 50 to 250 lb.

While Monadnock customers' discriminating need for these coated papers was already well-served, by 2019 it was no longer practical to keep patching up the coater's original gauging system. In fact, the production line occasionally encountered issues that led to increased re-work and excess

waste. Replacement parts were almost impossible to find, and more stringent paper standards exceeded the capabilities of the gauge's older technology.

"We were getting finished rolls with uneven coatings that caused a variance in the paper's profile," says Ian Hamilton, Coater Manager and Process Engineer at Monadnock.

"Sometimes rolls would run together on the slitter. So then they'd need to be unwound and rewound. That gets costly, slows production, and impacts the bottom line."

Bob McDonald, Monadnock VP of Manufacturing, adds, "The moisture content of the substrate wasn't always the same. As the cost of energy kept rising, we needed a better handle on what oven temperatures were required to condition our paper during the coating process. We knew a better gauging system would help us in this area as well."



Mahlo Scanner frame unit 1

The company has remained successful over 200 years through specialty market innovations. Better gauging systems would be critical to continuing that advancement. Known widely by designers and printers for their premium-brand writing and book papers, Monadnock also produces a wide array of specialty and technical papers with applications ranging from

filter media and tape components to medical packaging and strippable wall coverings.

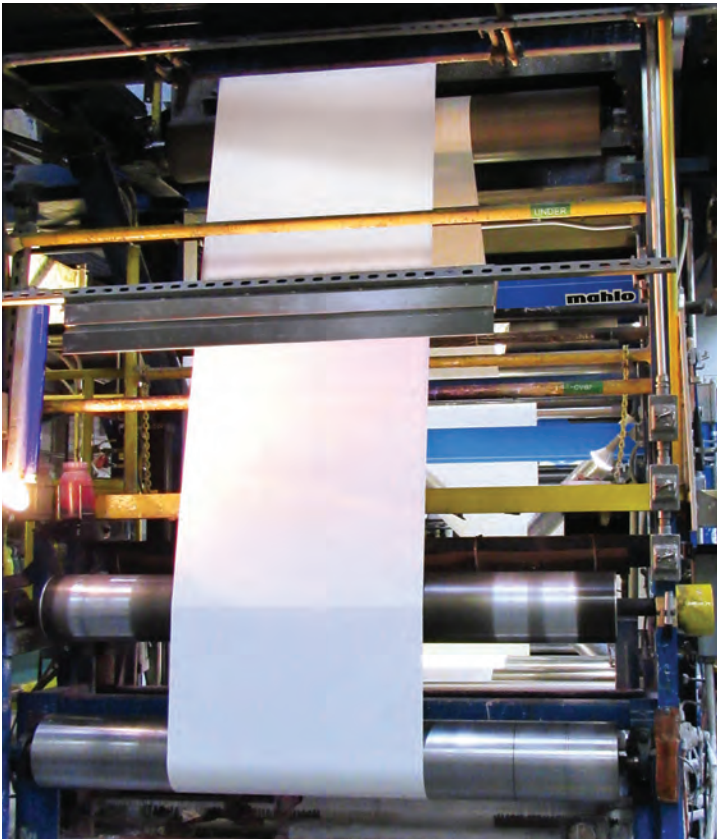
With Monadnock's diverse product portfolio plus the increase in complexity of demanding specialty and technical grades, McDonald and his team knew that better equipment

would be essential in order for Monadnock to remain a company borne of quality. It could also help cut waste in several areas: reining in oven energy cost, managing coating consumption, cutting re-work expenses, and reducing broke. The team spent almost a year seeking the best system to make their coater more efficient and productive. "We considered three different web scanner companies but soon narrowed that to two," McDonald recalls.

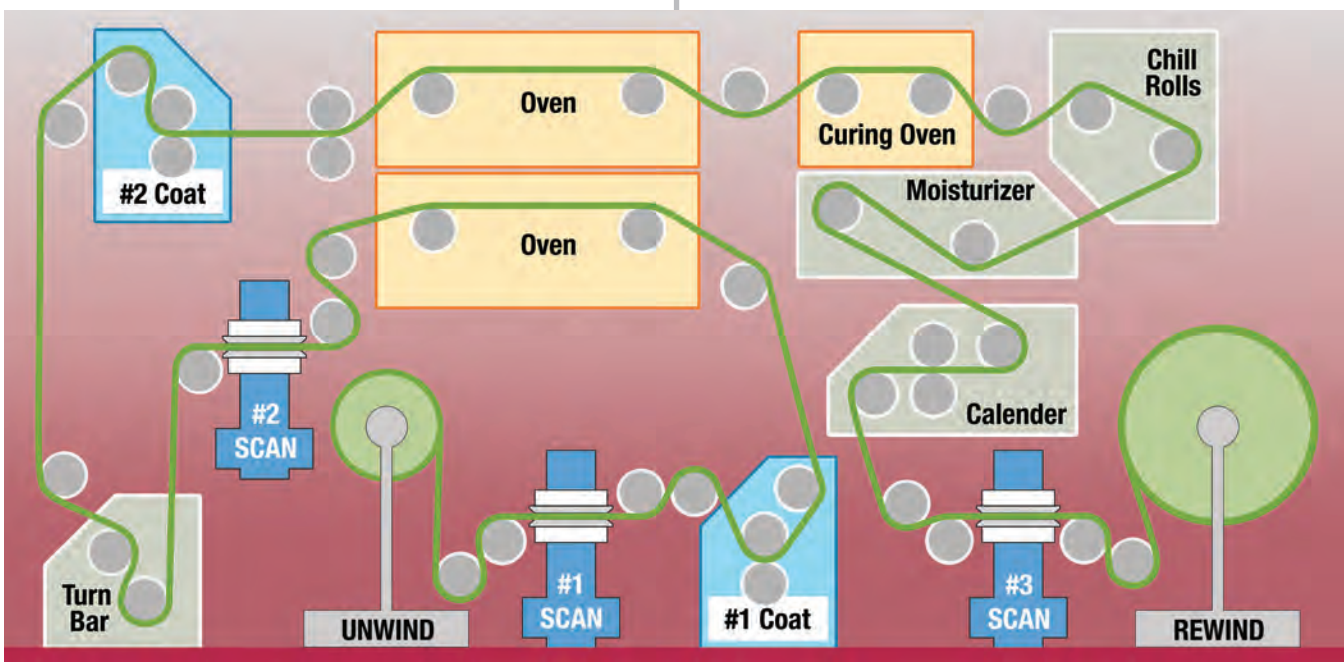
The greatest challenge facing the team was space. "Because the converting line was already compact, we were forced to spend a lot of effort on how to work around or re-work the plant's infrastructure," says Hamilton. "During that time, we made several visits to the regions' other web gauging installations, evaluating each scanner's performance.



Ian Hamilton prepares to shut down unit 3



Mahlo Scanner frame unit 2 on Monadnock's 60-inch coater



Operators using the Mahlo system were very pleased with how fluid and simple the interface was.”

Eventually the team concluded the coating line should have three scanner frames.

- The first scanner would measure basis weight and substrate moisture content so pre-coating conditions could be documented.
- A second unit would measure the same properties while gauging the coating thickness across the web. Simultaneously, the system would compare the substrate’s moisture content at both first and second scanner points and adjust the oven’s temperature in order to attain the desired moisture content of the final product.



Brenda Gagne restarts the converting line

- The third scanner would document those same property readings after the paper had been cured, chilled, and calendered.

“Throughout the process — whether it was Eric Reber at Mahlo or Mark Marra, their rep in New England — one of them was always eager to supply the info we needed to make this work,” Hamilton said. “Every time we found a new challenge, a Mahlo guy responded right away with a solution. Honestly, we did not receive the same type of project development response from the other gauging company that we selected to quote the project.”

Other elements factored into the team’s conclusion that Mahlo America was best suited to fulfill their objectives.

“Every other gauge maker required service contracts. But that’s not how Mahlo does business,” Hamilton noted. “First, their machines are rugged — they’re built to last. Next, they provide free lifetime telephone and internet support around the clock, no questions asked. If there is an equipment issue identified, Mahlo can send replacement parts from their warehouse for delivery the next day.”

Mahlo includes a secure remote-access service license with every system. This means that Monadnock users can give Mahlo technicians temporary access to the control interface online in real time, allowing the remote technician to diagnose the system quickly. In turn, it can also be used for remote training for operators or engineers. Mahlo Telephone and Internet Support service is included at no charge, around the clock, for the life of the system.

As with any continuous production line, downtime can be crippling. Mahlo, also a family-owned company, was afforded just six days to make the changeover. The Mahlo team enlisted the talents of Teknikor to engineer and execute the installation. Mahlo WebPro-S-II O-Frame scanners with beta and microwave sensors were installed in the first two positions. A WebPro-M O-Frame scanner would measure the product just before rewind. “We had a lot of space constraints to deal with,” Hamilton says. “Start-up performance far exceeded all of our expectations as the line just started right up with technical support from Mahlo and the Teknikor install team.”

Equally enlightening was the response Monadnock got from some of the line’s operators. “Once we started getting real-

time information from the scanners, we could see exactly where some of our profile inconsistencies were originating,” says Mark Poland, Monadnock Shift Supervisor. “That got the machine operators curious about the causes and thinking further about possible solutions.”

That newfound awareness spread quickly among the line crew. “I worked this line for 13 years before the Mahlo scanners were installed,” admitted Brenda Gagne, Coater Lead Operator. “We were just coating the substrate and sometimes had to do rework, but that seemed to be the nature of the line and the job. Once I started seeing all these live readings, I began to wonder where improvements could be made.”

“Start-up performance far exceeded all of our expectations as the line just started right up with technical support from Mahlo and the Teknikor install team!”

Poland recalls that “Brenda started pointing out areas that might make a difference in how much coating was being used and where tensions might improve consistency. Our big advantage was knowing immediately the effect of making tiny adjustments here or there because it would show up on the scanners’ monitors. Those gauges also helped us to improve the consistency of the papers we were coating.”

As a result, Monadnock has reaped impressive savings in many areas. “This gauging system is allowing us to achieve savings in areas such as energy use, raw material use, coater

“This gauging system is allowing us to achieve savings in areas such as energy use, raw material use, coater throughput, and reducing internal quality rejects.”

throughput, and reducing internal quality rejects,” reports Hamilton. “Our profiles have improved so much that we have been able to run rolls through downstream

slitters consistently faster than before installing this gauging system. It also provides data that empowers the operations team to make significant, ongoing process improvements. We trust the new Mahlo gauging data and our operators are now fully committed to our gauging system as a source of reliable, real-time information to further improve product quality and our mill’s productivity.”

As McDonald says, “Our people are our most important asset and their input is encouraged and appreciated. This

philosophy was certainly evident throughout this project from system selection to equipment and control panel location layouts. Ian involved one of our key operators to make site visits with him to evaluate the different systems. This proved very valuable in the project engagement

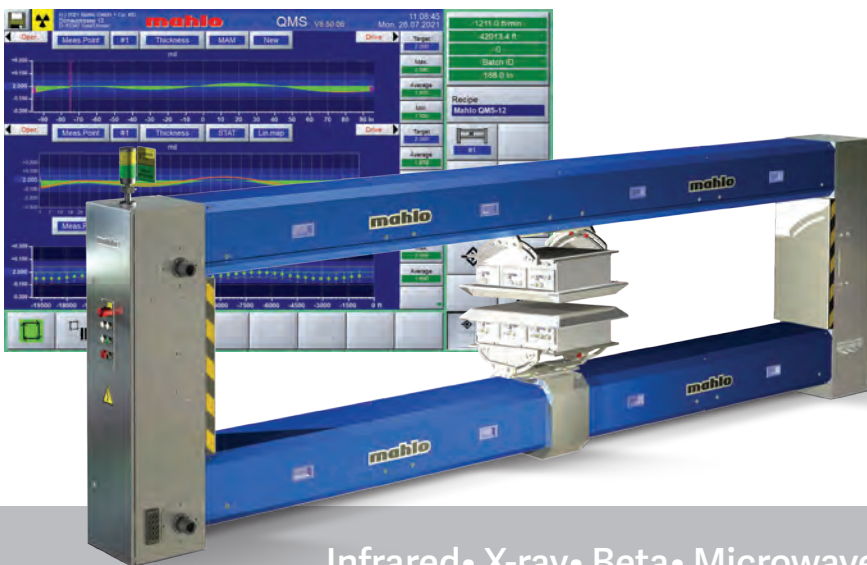
process. We believe the processes and systems we put in place, like these Mahlo scanners, empower our people to better identify with the products they produce and take ownership of the quality of the end product. That satisfies the staff, our customers, and the end users. It also adds stability to our company and our community.”

After more than a year, the line continues to improve in efficiency. “We’re very pleased with what this system has done for our coater,” McDonald concludes. “We are achieving our projected ROI for this project in a shorter time frame than we expected.”



Mark Poland records quality test results

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MORE INFO

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