AN INDEV 2016 AIRLAID MANUFACTURING CASE STUDY

In 2014-15 Indev installed several measurement and control systems within the fiberglass and airlaid manufacturing industries. These systems were used to either replace existing measurement devices or installed in locations where scanning systems had never been used prior. This provided a unique opportunity for Indev to truly determine the end effect of in-line scanning and control on yield, quality control and labor in this environment.

Within this industry the general method for validation of quality control are to perform sample cut outs at specific intervals, weigh the samples, record and make process adjustments. Time taken to do this is appx. 10 minutes per sample and generally performed twice per hour unless the sample is bad and requires further confirmation. This resulted in a minimum 2 hours per shift of labor time.

Customer specifications in this industry can be somewhat open with tolerances of +/- 15% acceptable due to the nature of the product. The industry has conformed to this so operations have been focused on output in many cases rather than control. This method of sample checks and weighing is generally acceptable to the customer but many times stymies the reason for improvement, thus the focus on the Indev Case Study. After measurement of 40 points over time with 2 different products, it was confirmed tolerances were indeed being run at +/15% and even slightly more on the line running without in-line gauging or control. In the case of Airlaid product, this limited the addition of regrind or trim to a maximum of 46% to maintain the proper weight given the tolerance.

Installation of the XRay scanner consisted of measurement and feedback to provide automated line speed control for Airlaid operations. Within the first few weeks of operation, it was quickly discovered the weights to one edge of the web tended to be as much as 23% higher than the other although it was difficult to initially see with random cutout samples. The scanner pointed out where the simple feed and gap adjustments were required quickly bringing down overall average tolerance to within +/-11% with no other action taken. As a result, regrind was immediately added to the blend. Regrind within some of these facilities comes from not only internal to the existing plant, but also from other facilities or the general commodity market increasing cost effectiveness as well as material variability.

After more fine tuning with the process and Indev measurement control, it was quickly discovered the process could hold a +/- 6.5% tolerance variation at a significantly increased regrind or trim addition of up to 65%. A 20%+ increase from the standard operation with more than a 100% improvement on quality control on weight.

Companies have tried using in-line load cells in the past as well but the weight distribution of material across the web is seldom even and detecting weight in-balances within specific locations is hard to find and very difficult to control. The side to side variation skews the average total weight and also can create problems within the ovens with uneven drying. The high speed scanning XRay provides this information quickly, efficiently and with the automated control feedback, gives a much higher yield with far better product quality.

AS A SUMMARY RESULT OF THE TESTING IT WAS FOUND ON AVERAGE:

Yield Savings: *20%+ Savings in virgin material costs*

- 9% Improvement in Giveaway Yield
- 25%+ Increase in regrind material
- 50% Improvement in tolerances and target optimization
- Estimated savings of $.20-0.25/# with regrind vs. virgin

Quality Improvement: *Over 100% improvement*

- Tolerances were changed from +/-15% to +/-7%

Labor Savings: *Reduction in sample checks by 70%*

- For 3 shift operation estimated savings was $18K/yr.

Operations: *Automated Control*

- Removed subjectivity between operators
- Increased output in #/hr. running more dense regrind material
- Improved drier performance knowing heavy/light early on
- Reduced wait time from QC between sample checks

The line is now automated with the ability to increase speeds while maintaining quality and yield control. The limiting factors have proven to be other process components which are currently being evaluated.

While Indev was not provided actual ROI data from customers we were informed the scanning system was paid for within 3 months based on yield improvements alone.

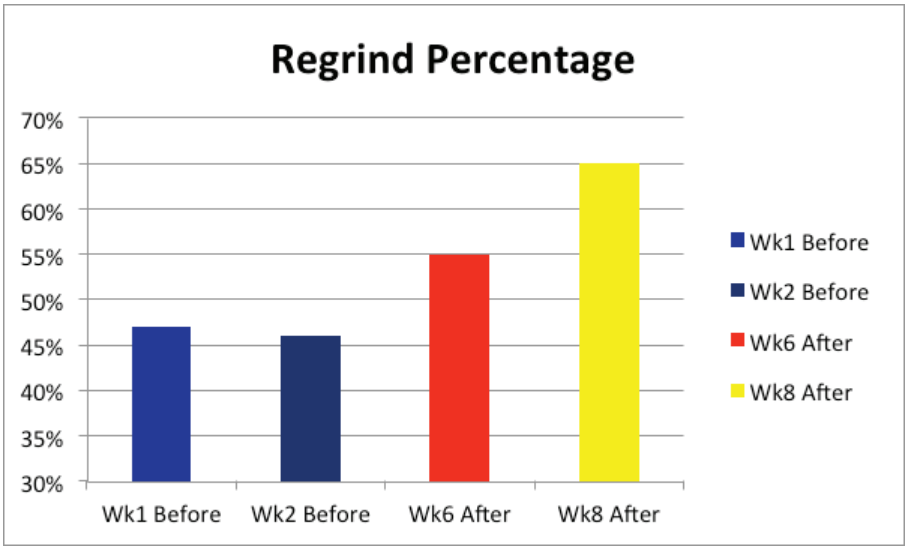

Chart 1

Above Shows the Increase of Regrind After Installation of the XRay Measurement System and Process Rebalancing

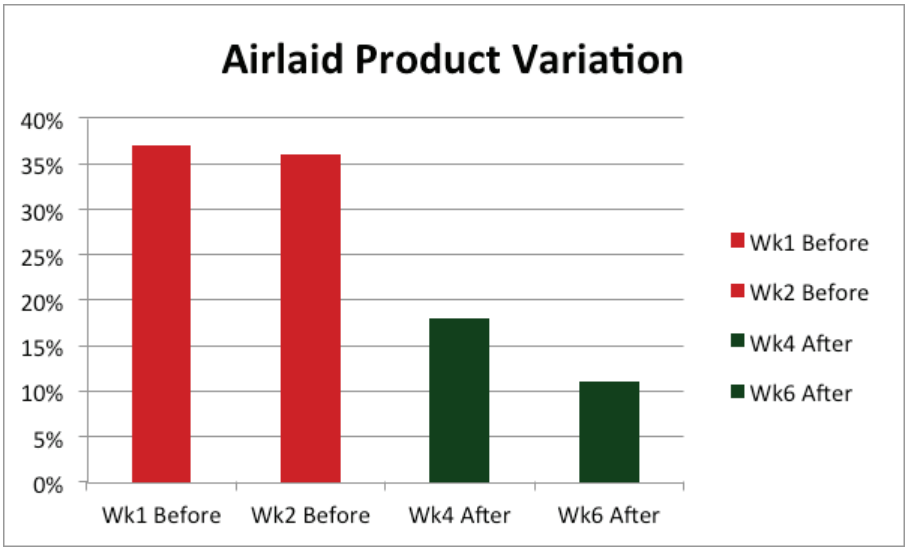

Chart 2

Above Shows the Improved Product Variation and Specification Tolerances Achieved After XRay Installation and Process Rebalancing

MADE IN USA AND SUPPORTED WORLDWIDE

Indev Airlaid Scanner Has 3 Month ROI!

Over the years of 2014-16 Indev installed several XRay measurement systems within the Fiberglass and Airlaid Material Industries. With a case study involving 2 manufacturers, these systems have been proven to improve quality tolerances over 50%, increase overall give away yield 8%, increased trim and regrind material capability over 20%, increased throughput 4% and paid for the entire measurement and controls package within 3 months time. Proper utilization of the right in-line measurement system in any manufacturing process is not only invaluable to understanding the process but almost an absolute requirement to improve and sustain. How can you improve what you cannot measure? How can you sustain automated control without constant data feedback?

For more information on the case study, please visit us at www.Indevsystems.com