



## Waupaca Foundry Partners with Pangborn to Implement Abrasive Recovery and Waste Minimization

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### Challenge

Waupaca Foundry, a Hitachi Metals Group company, provides iron castings to the transportation, construction, agriculture, and industrial markets worldwide. The largest foundry in the U.S., the company has a history of innovation and quality, and its leadership team is dedicated to leading the industry in environmental innovations and exploring new ways to manage their end-of-life waste stream.

Waupaca Foundry operates an integrated system for the handling of waste materials and industrial by-products generated from foundry operations. Waupaca's Engineering Team was concerned that some reusable abrasives were not being captured in their current foundry byproduct and abrasive reuse management processes. They were searching for a way to separate the waste into clean, non-contaminated materials to facilitate recovery of abrasives with remaining value that may otherwise be lost in the waste stream.

### Solution

Pangborn offers a complete line of abrasive recovery and waste stream solutions that can be incorporated into the design of new equipment, retrofitted on existing blast equipment (from Pangborn or other vendors), or delivered as a stand-alone system. Waupaca's engineering manager and project engineer selected Pangborn for this high visibility project. Prior to this, the company had worked with Pangborn on blast wheel conversions which enabled Waupaca to extend the life of their wheel wear parts.

Teams from Pangborn and Waupaca worked closely in order to fully understand Waupaca's byproducts and abrasive recovery expectations. Waupaca has multiple waste streams and industrial by-products containing different types and sizes of waste particles – all of which need to be separated and sized to determine reusability and recyclability.



Pangborn's engineering team designed a customized, stand-alone solution specific to Waupaca's needs. Pangborn reconfigured and integrated current blast machine technology into a recycling system enabling Waupaca to remove and separate large, heavy, tramp material, smaller waste components such as paper and flashing, as well as the most minute particles of dust and sand. Key components of the solution include:

- a **magnetic separator** to separate the abrasives from sand and dust; and,
- a **vibratory screener** (classifier) to classify and recover the reusable abrasive.

During the solution design process, the project scope was expanded to incorporate additional methods of getting materials into the separation system, including new conveyors and increased elevator height. Ultimately, all waste streams went through the separation and screening processes resulting in waste that was separated, sized, and ready to be reused, recycled, or discarded as necessary.

Waupaca Foundry's complex system of waste streams and material flow could have made the installation and implementation of the Pangborn Abrasive Recovery & Waste Stream Solution challenging, creating interruptions of material flow and downtime. To eliminate these problems and keep any downtime to a minimum, installation and implementation of the classifier began on a Friday afternoon and was up and running by the following Saturday morning. Throughout the installation, a Pangborn technician was on site to ensure the system was set up properly and working as promised. During the testing phase, Pangborn was able to further fine-tune the solution with a different set of screens better suited to Waupaca's requirements.

Waupaca Foundry's material handling system is integrated and centralized. If a single component of the new solution went down, the entire plant was at risk of shutting down. To avert this risk, a fail-safe was built into the system so that if one segment of the overall system was experiencing a problem, it could be bypassed and the plant would continue to run with minimal disruption.

## Benefits

Waupaca Foundry installed Pangborn's customized, stand-alone Abrasive Recovery & Waste Stream solution in the fourth quarter of 2018. Abrasive recovery was the key driver for the company as abrasives on average cost \$800 per ton. The solution has enabled the company to recapture approximately \$30,000 of abrasives per month. In addition, the solution further solidifies Waupaca Foundry's leadership position in environmental innovations and sustainability practices. Additional benefits include:

- the ability to separate metallics from non-metallics in the waste stream;
- promoting the beneficial reuse of foundry byproducts;
- reduced abrasives cost; and,
- increased productivity.

## About Pangborn

Pangborn is dedicated to providing superior shot blasting equipment and surface preparation solutions to thousands of customers across a variety of industries. The diversity and flexibility of our solutions enables us to serve customers who are looking for comprehensive turn-key solutions, as well as those who have very specific, a la carte needs. Working closely with each customer, our sales, engineering, and service teams design best-in-class solutions that help our customers drive operational excellence and realize improved total cost of ownership and increased profitability. We are more than just another supplier; we are a trusted partner and brand. With offices and support personnel located across the globe, we bring 146 years of experience and expertise to key markets and customers worldwide.

