

# Challenges and Solutions in Material Flow

***Sawing inefficiencies can be caused by issues with handling metal.***

**M**etal distribution companies face stiff competition in today's economy and are constantly asking for ways to cut costs and increase profitability. Most notably, the request is centered on efficiency and reduction of process time to meet deliveries and make a profit at the same time.

Often, metal service center managers ask specifically how they can speed up their band sawing process to increase productivity and efficiency in their plants. In many cases, it is not only the saw choice or the need to improve the sawing function at all, but a matter of wasted time in moving material into and out of the sawing operation.

Focused time-study assessments and analysis over years of evaluating sawing operations in various types of facilities has led to the realization that a more comprehensive approach to the sawing process, one that utilizes a "sawing system" design concept, is required. This concept, along with new innovative control engineering, has improved the output of the sawing process exponentially.

Even if a 50 percent reduction in sawing time is achieved, this will only reduce the overall sawing efficiency/output by 20 percent at best. So, efficiencies must be sought out in other areas of the operation.

In one such study it was discovered that a customer had lost \$3,132 during just one 10-hour shift. The majority of that loss was attributed to wasted time preparing for the next cut, leaving the saw idle during the material handling process that required the use of a shared crane to load and unload the band saw. Material handling is often overlooked as the culprit,

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and when it is recognized as the major contributor to process time, remedies can be integrated into the sawing system to greatly improve efficiencies.

Solutions involving material handling components have been created to improve efficiencies by employing the "Sawing System" approach rather than a focus on individual components. The ability to move material through the primary sawing operation and into secondary and even tertiary processes, is creating more efficiencies with increased material flow. As mechanical improvements to these features have improved, design improvements in the controls of the material handling components combined with an "integrated" sawing system approach have become a focus.

Not every business has the budget, or need, for a fully automated material handling system. Components such as cross-transfers, powered roller tables, or side loaders might be overkill for a small operation, but there are still many budget-minded material handling features that can make a huge difference in the bottom line, improving output with less long-term production cost. The ROI has

to be taken into account when an engineering department takes on any project.

In addition to more efficient material flow and the increases in productivity, customers are also demanding sawing systems that provide more internal management control of the sawing process. HE&M Saw began utilizing new PLC touch-screen technology with in-house programming to develop intuitive controls for both the saws and material handling systems. In addition to the advanced control technology, 'non-contact' material measuring devices utilize the latest sensor and motion control technology for accurate and time saving material measuring which further improves efficiencies.

Service center management is continually looking for ways to monitor their equipment and receive feedback in formats that are easy to evaluate and are actually useable for decision making. With upcoming control technology, HE&M Control Engineers are developing controls that will use feedback devices to provide a wide range of machine and process monitoring including predictive maintenance information. This new "Smart Saw Connect" design is in development and the upcoming software associated with Smart Saw Connect will be compatible with MTConnect, the non-proprietary manufacturing technical standard designed so that data can be exchanged between software applications and equipment on the shop floor. ■

**HE&M Saw**, Pryor Creek, Okla., has been manufacturing band saws and band saw technology for more than 50 years. For more information, visit [www.hemsaw.com](http://www.hemsaw.com).