

# Cutting Into An Existing Material Handling Process

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## The Problem:

An industrial tool manufacturer needed to clean, deburr, and shot peen band saw blades. Once prepped, the blades will be fitted with hardened cutting tips made from carbide and other materials. The blades start out as steel coils of up to several hundred feet in length – in thicknesses ranging from 0.025 to 0.063 inch. A slitter cuts the coils to width – from 3/8 inch to 4 inches.

These narrow steel bands pass through special dies that cut the blade shape along one edge. The size and angle of the blades are dictated by the application. As with any stamped or cut metal edge, the blades exit the cutting heads covered with fine burrs that interfere with the fit between the teeth and the hardened tips. Once cleaned, the blades must be shot peened on both sides to enhance fatigue life.

The customer had been processing the blades in a modified blast cabinet, but the system was slow and produced inconsistent results. The company was reworking its production line. Whatever blast process we developed would have to integrate into their new parts-handling system.

This is a relatively straightforward application, except that the parts are extremely unwieldy. Coiled steel is notoriously hard to handle, but coiled saw blades represent a very dangerous parts handling problem.

## The Solution:

Luckily, this company has been making band saw blades for decades. They're experts at safely unwinding and rewinding coiled bands, and at handling them as they pass through the various manufacturing steps.

The customer agreed to supply the parts handling equipment – a system of unwind/rewind spools feeding the bands through powered guides. Clemco would wrap the guide portion of this system inside heavy-duty blast enclosures.

This solution required two matching cabinets. The first cleans and deburrs; the second peens the blades with glass bead. Cleaning and deburring the blades is relatively easy with a blast of fine aluminum oxide.

Shot peening, however, creates a much bigger problem. The steel bands react like giant Almen Strips, arching toward the blast nozzle when they're peened. The actual intensity specified would be different for each blade thickness. To minimize the distortion, and maximize the benefit from the shot peening, we had to create a system capable of delivering the same peening intensity to both sides

## Herb's Solutions



*Herb Tobben creates solutions to customer problems at ZERO's Sample Processing facility.*

of the blade simultaneously. Six pairs of guns are precisely positioned on both sides of the long narrow enclosure. Each pair of guns is angled to blast both sides of the blade at the same point, without striking each other with overspray. During sample processing and runoff we managed to get nearly identical peening intensities on both side of the blade using ZERO's new locking metering valves.

Because the customer built the parts-handling equipment, we were able to integrate the blasting and shot peening into their process controls using simple mechanical part sensor switches. The ZERO automated cabinet has significantly cut the time and rework this customer requires to make saw blades.

Got a question about shot peening, abrasive blasting, or sample processing? Clemco can help. Call 636 239-8135 or submit your request online at

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