

CHICAGO MANUFACTURER OF RETAIL DISPLAYS BESTS GLOBAL COMPETITORS WITH AUTOMATED LASER-CUTTING, FORMING AND MATERIAL HANDLING SYSTEMS

Software-linked cutting and forming systems from Cincinnati Incorporated acts as “mini ERP” for Midland Metal Products, allowing company to churn out 35 prototypes per week while meeting JIT production schedules on day-to-day work.

Chicago, IL - How does a family-owned manufacturer of in-store retail displays compete on the global level from its single Chicago-based operation? For Midland Metal Products the answer is simple - give customers unbeatable quality and delivery using integrated, automated laser cutting, material handling and forming systems from Cincinnati Incorporated.

In 2003, the company stood at the proverbial “crossroads,” needing to decide if it would continue to serve the point-of-purchase display needs of national retail outlets and, if so, how to do it more competitively. The McDonald family - father Bernie, mother Suzanne, and sons Marcus and B.J. - made the decision

not only to continue, but to expand and evolve by employing automation in its metal fabrication operation.

“As CEO, my responsibly is to be a steward of the company to ensure its continuation for future generations,” said Suzanne McDonald, granddaughter of the company’s founder. This stewardship drives Midland’s commitment to re-invest profits into automation and positioned the company as a leader in its field.



CINCINNATI equipment has enabled Midland to build a reputation with national retailers as a provider of parts and fixtures of impeccable quality, like this piece the company recently produced for Sears.

Today, the company’s success is driven, in large part, by its commitment to automation. At the core of that automation are two CINCINNATI Laser Cutting systems with an automated material handling system and four CINCINNATI Press Brakes. This equipment has allowed Midland to cut lead times from 8 weeks to as little as three, while becoming a much leaner operation. They systems also allow the company to produce full-size, functioning prototypes rapidly - a core capability and key advantage for a company that averaged 35 prototypes a week in 2010. “The retail world is as fast-paced as it comes,” said Marcus McDonald, co-owner of Midland. “Our CNC equipment run with the Scheduler software allows us to stay in step with our customers and deliver high-quality fixtures within tight time frames.”

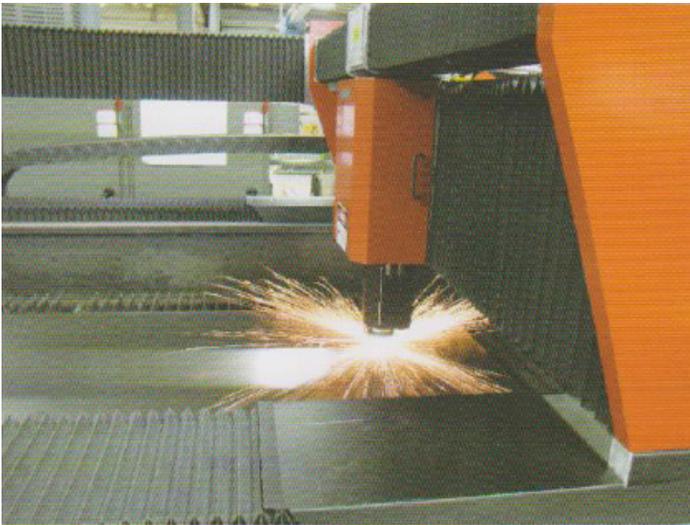
Midland understands the value of U.S.-based manufacturing in today’s business climate from both the customer and service provider perspectives. “We discovered there’s a significant market for domestically produced fabrications,” said McDonald. “Our customers use price, quality and delivery time to make purchase decisions. These days it’s hard to compete with offshore prices, but our team and equipment win often on quality and delivery.”

A Metal Fabrication “Triple Threat”

Founded in 1923 as a wire shop, Midland now occupies a 110,000 sq. ft. facility near U.S. Cellular Field, and has expanded to become a rare “triple threat” in metal fabrication - specializing in wire, sheet metal and tube fabrication. However, it took a significant investment in equipment and tooling and a willingness to embrace automation to get the company where it is today. “Having been in business 85 years, Midland had accumulated a stable of 20 punch presses we were constantly either setting up or repairing. Our turnaround time was anywhere from six to eight weeks, depending on the project.” said B.J. McDonald, co-owner of Midland and brother of Marcus. “We were determined to get our delivery time down to three to four weeks to be competitive in the industry, and we started looking at ways to achieve it. Our first piece of CNC equipment was a turret press.”

That led to the purchase of Midland's first laser cutting system in 2005 - a CINCINNATI 3500-watt CL-707 - and changed the company's approach to manufacturing. "When we acquired the laser, we also looked at lean manufacturing models and things like the Five S's (set, sort, shine, standardize and sustain) and the Rule of Adjacency," said B.J. McDonald. "We re-arranged our shop floor to maximize the laser's impact on our operational efficiency."

Now automation is the theme in many other areas of the factory as well. Midland has deployed CNC wire formers, CNC robots, CNC mesh welders and a CNC tube laser.



Midland's CINCINNATI CL-840 laser cuts a range of materials - from 11 gauge to 22 gauge mild steel and wood - using only shop air.

Acquiring the laser also led Midland to a better appreciation of well-built machines and responsive customer service. "Our operation went from using 20 punch presses to relying on a single laser cutting system, so we needed ultimate reliability," said B.J. McDonald, "Without back-up equipment, service and support became a huge factor because downtime is death." For this reason Midland appreciates CINCINNATI's proximity and quick response when machine maintenance or repair is required. "We've got a great relationship with the team from CINCINNATI, and the service and support have been key to our ability to meet deadlines," said Marcus McDonald. "If we need a machine part, it's here in a day. With foreign-made machines, it may take weeks to get a part delivered and we can't afford to be down that long."

Next, the company added four CINCINNATI press brakes, including a 60-ton Autoform+ and 90-ton Proform, further expanding its metal forming capabilities. The Autoform and

Proform feature programmable ram speeds, allowing Midland to maximize forming speed for fast throughput of the small parts common to display racks and fixtures. The Autoform also features

Dynamic Thickness Compensation to improve angular consistency by measuring and automatically

compensating for material thickness variations during production runs. CINCINNATI's Proform brakes feature Quick Clamp modular bolt-on ram nose for use with hardened, sectionalized tools. All four press brakes at Midland have CINCINNATI's Touchscreen PC controls, including two CBII model press brakes that received control upgrades.

A CINCINNATI CL-840 4000-watt Laser Cutting System and an extension to the existing Modular Material Handling System (MMHS) followed in 2012, and the backbone of Midland's fully automated shop was in place. The CL-840 is designed for high throughput, all-around material versatility and cutting precision, making it perfectly suited to Midland's high-volume, quick-turn operations. "Retailers react to consumer trends, and the desire to get newly approved fixtures in stores as soon as possible. The fabricator that can turn a project around the fastest, while still meeting the quality and design standards, is going to get the business," said B.J. McDonald. "That's what this technology and automation have allowed us to do, earn and keep business."

The CL-840 also expanded the range of materials Midland uses in its fabrications. "Before the 840, we could cut up to 14 gauge mild steel using shop air. Now we're cutting our full range of materials, from 11 gauge to 22 gauge mild steel and even some wood, still using only shop air," added McDonald.

The MMHS serves both lasers at Midland, adding to the shop's productivity and allowing the company to optimize its staff size. "Automation allowed us to do more with a leaner, more focused



Midland first purchased a CINCINNATI 3500-watt CL-707 in 2005, along with a CINCINNATI Modular Material Handling System (MMHS). Four CINCINNATI press brakes and a CL-840 high-throughput laser followed, providing the backbone of Midland's fully automated shop floor.

staff,” said Marcus McDonald. “We found that machine operators who embraced the automation were able to take on more responsibility. This allows us to work leaner, while still increasing our productivity. Our team found many small ways to be more efficient. For example, we don’t use all of the drawer slots on the MMHS tower, so one of our operators discovered that if we pull out one of the upper drawers, the feeder doesn’t go all the way to the top before starting back down. It may save just a few seconds at a time, but that adds up over the course of the day.” The MMHS feeds the 6ft. x 12 ft. (2m x 4m) sheets used by Midland’s two lasers, and handles material thicknesses ranging from 22 gauge (0.76mm) to 0.5 in. (13 mm).

To maximize the efficiency of its CNC equipment and ensure it meets just-in-time delivery requirements, Midland collaborated with CINCINNATI to develop the Scheduler software. Scheduler is part of CINCINNATI’s software suite used to control the



A Midland press brake operator preps a file on a CINCINNATI Autoform press brake. Midland averaged 35 full-sized, fully functioning prototypes per week in 2010. Interface between software (Solidworks) and machines enables Midland to receive a design file, send the flat files to the laser, send the formed files to the press brake and have a prototype the same day.

company’s laser cutting systems and press brakes. Scheduler takes information entered by the programmer and automatically nests parts for optimum material usage and job turnaround. It also tracks material inventory and provides a production schedule to ensure delivery dates are met. “The Scheduler software made order out of chaos,” said Marcus McDonald. “It’s like a mini ERP system. It gave us the ability to accommodate last-minute design changes or increases in order quantities, common occurrences with our retail customers. We also use it as a customer relations tool because we can accurately determine when orders will be delivered based on information from Scheduler, and communicate that to our customers for their planning purposes.”

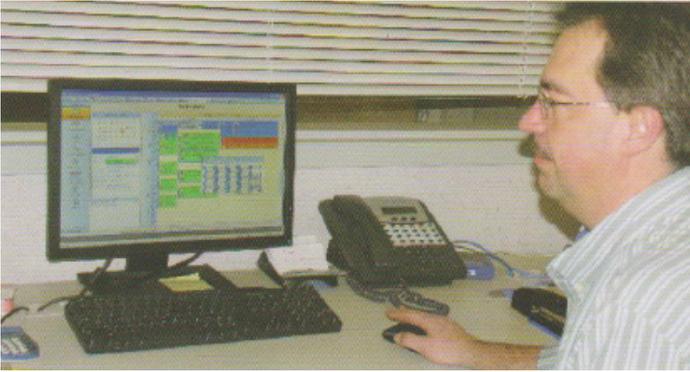
Compatibility of CINCINNATI lasers and press brakes with Solidworks makes it possible for orders to be received and manufacturing of the parts to begin the same day. The software also makes prototyping easy - critical to a company that produced more than 1800 prototype designs last year. “We produce full-size, fully functioning prototypes and the interface between Solidworks and the laser cutting systems and press brakes is key to our ability to show the customer exactly what will end up in stores,” said Marcus McDonald. “The interface between the software and the machines enables us to receive a design file, send the flat files to a laser, send the formed files to a press brake and have a prototype done in the same day.”

The quality and ease of use of the CINCINNATI equipment have enabled Midland to build a reputation with customers as providing parts and fixtures of impeccable quality, delivered on-time. “Our products are viewed as ‘premium’ in the market and our customers expect excellent quality and on-time delivery,” said Marcus McDonald. “That is a reputation that our CINCINNATI equipment helped create, and now it allows us to maintain that reputation and continue to build our business.”

It’s rare for a family-owned business to reach its fourth generation of management. “As the old saying goes, the first generation builds the business, the second generation makes it a success and the third wrecks it,” jokes Marcus McDonald. But Midland is far



“Automation has allowed us to do more with a leaner, more focused staff,” said Midland Metal Products co-owner Marcus McDonald, shown here with the company’s CINCINNATI Modular Material Handling System (MMHS).



Scheduler software helps ensure Midland meets just-in-time (JIT) delivery requirements, tracks material inventory and nests parts for maximum material usage.

from ready for the scrap heap. The company's commitment to the future is illustrated by its investment in advanced machine tools. This year marks Midland's 90th year in business, and the company is taking what it has learned serving major retailers, and is looking to expand into additional markets where high-quality fabrications and can-do attitude are valued. McDonald added, "Our equipment and processes are allowing us to approach other metal fabrication markets, and that's something we could not have done seven or eight years ago."

Midland's relationship with CINCINNATI has developed to the point of serving as a Chicago-based showroom for CINCINNATI equipment.

"We have CINCINNATI customer prospects come through our shop about once a month to see the lasers and press brakes in action," said Marcus McDonald. "We can show them just about anything CINCINNATI offers - lasers, press brakes, material handling and the software that runs it all."