



Machining

Inside a Certified Weld Center: Producing Lenox Band Saw Blades at Scale

Vanessa Jo Roberts | Mar 10, 2020

The MSC Lenox Certified Weld Center produced 114,000 band saw blades last year, many for orders that came in and shipped out the same day. How did its team of seven welders achieve that? We talk to both Lenox and MSC to find out.

"A band saw blade is only as good as the weld that holds it together," Matt Lacroix likes to point out.

"We could do everything perfect in our Lenox factory making a band saw coil. It should leave here with zero defects," explains Lacroix, vice president of marketing for commercial construction and industrial power tool accessories for Lenox Industrial Tools, a division of Stanley Black & Decker.

"But if the blade's not welded properly, as soon as you put it on a machine or start cutting a real challenging material, that weld is going to give. Ultimately, the blade can break and leave the customer dissatisfied."



"The key thing with welding is that it's got to be consistent so that every time you do the same thing."

Jerome McDonagh

Senior Sales Manager, Sawing Solutions Group, Lenox Industrial Tools

In the case of the MSC Lenox Certified Weld Center in Warren, Michigan, making sure the weld is perfect every time lets "that blade do its job effectively," Lacroix says.

The center, wholly owned and operated by MSC Industrial, passed a rigorous requirements process to become a Lenox certified weld center. The 20,000-square-foot facility, the largest of any weld center in the Lenox program, maintains that certification through a series of quarterly reviews by Lenox—of its welders, of its equipment and workshop, and of the **blades** it produces bearing the 105-year-old Lenox imprimatur.

What It Takes to Produce the Perfect Band Saw Blade Weld

"Anyone that produces a 100,000 of anything is doing a ton of work. In Warren, the team of welders is only producing Lenox band saw blades—all day, every day," says Brian Rooke, director of national accounts for Lenox. "The fact that it is a dedicated facility means that they have muscle memory and attention to detail and quality."

That attention to detail is critical, adds Jerome McDonagh, senior sales manager for Lenox's Sawing Solutions Group.

How Lenox Innovates Its Band Saw Blades

"Lenox has been making band saw blades in America for 105 years," explains

Brian Rooke, national accounts director for the company.

All production is in the United States, and the current headquarters in East Longmeadow, Massachusetts, is just 9 miles from the original plant.

Lenox Industrial Tools' reputation, Rooke says, is built on innovation and quality—made possible by continuous investment in R&D.

"We have always been a premium product," adds Matt Lacroix, vice president of marketing for commercial construction and industrial power tool accessories for Lenox, a division of Stanley Black & Decker. "The reason is that we help people reach their cutting goals for productivity and higher performance. You might pay more per blade, but you're going to use fewer blades over the course of a year."

The technical field service team is really the secret sauce, Lacroix says. There are competitive quality products on the market, he acknowledges. "But no one does what our field team does."

The applications specialists go into facilities, determine the users' needs, and then work with the saw operators to tune up the machines, establish optimal parameters for different blades and share best-practice cutting techniques, he explains. The goal is to help businesses get the most from their saw operations.

Evolving Band Saw Blades Through R&D

To that end, Lenox invests in product evolution to stay abreast of changes in the market.

"We have a team of R&D engineers that are always working on tooth designs, evaluating new raw materials and developing edge preparation techniques to make sure that the products are always performing at their peak level," Lacroix says.

For instance, for a bi-metal blade, the engineers might look at new edge materials. For a carbide blade, they might consider different carbide grades.

"They're always working on tooth geometries and tooth patterns, all the rake and relief angles on the blade, as well as how the cutting edge is bonded to the backing steel." And, Lacroix notes, all of that research is done against a backdrop of new band saw equipment coming on the market too.

Another leading innovation focus for Lenox has been physical vapor deposition coatings. Its first coated blade was the Armor CT Black. The addition of PVD coating to a tooth edge protects the teeth from heat and wear by forcing the heat into the chips instead of the teeth, Lacroix explains. The teeth stay sharper longer and achieve better cutting speeds.

Lacroix says Lenox was the first blade maker to use coatings, and its engineers refine the coating recipes.

The evolution of materials in specific industries drives change too. Aerospace and automotive manufacturing both offer examples of how materials affect blade development, Lacroix says.

“The materials that are needed to succeed in aerospace are very challenging to cut—high-nickel alloys, Inconel and Monel. Our blades have to evolve to keep up with those materials,” he says. In automotive, there’s been a transition from steel to aluminum “because it’s lighter yet still strong and durable,” but cutting it fast requires carbide blades to withstand the heat buildup.

“The key thing with welding is that it’s got to be consistent so that every time you do the same thing,” McDonagh says.

What does that look like over and over again? He ticks off the necessities:

- You clamp the blades the same way.
- When you cut a blade, you make sure that there’s a straight edge.
- When you match that edge up to the other edge, you’ve got two straight edges coming together.
- You make sure the clamping pressure on the machine is correct.
- You get the welding machine up to the just-right heat for the ideal amount of time.
- You make sure there are no foreign particles in the machine.

“If you have all of that in place, your chances of producing a good weld are high,” McDonagh says. At the MSC center, “their level of consistency is extremely high in welding a quality blade every time.”

Lenox Program Relies on Guidance, Training and Inspection

Lenox has evolved its certified weld center program so that distributors like MSC can produce blades of the highest quality for customers.

It does this by requiring not only that a distributor center be set up like it’s global welding operation at Lenox headquarters in East Longmeadow, Massachusetts, but also by requiring that certified centers have their welders attend training at its weld schools there.

McDonagh likens the training program to learning to cook: “You can set up a kitchen nicely and exactly the way you want to do it, but in terms of coming in and cooking a meal, you need a bit of instruction and training.”



Need help with a tricky cut? Try Lenox’s SawCalc to figure out the right blade and the best speed and feed for your job.

It’s equally important to regularly check that centers are maintaining the quality of their welds,

McDonagh says. Each quarter, welders at all Lenox certified weld centers send samples to the company's Quality Assurance Lab for review.

At the lab, a Lenox quality assurance technician puts each weld under the lens of a microscope.

"These analyses are able to detect any issue or a problem in a weld," McDonagh says.

A technician reviews a weld using a series of visual and structural analyses that can determine, for instance, whether too much heat was applied during the weld (which can make it brittle) or whether not enough was applied (which can make it weak).

What Happens During Weld Sample Inspections at the Lenox QA Lab

It's these critical reviews of the weld work that help ensure that every blade crafted and sold by a distributor meets Lenox's 14 inspection criteria, McDonagh says.

"We perform a visual inspection followed by a physical inspection and, as necessary, a microstructure examination of the weld area," he explains.

For the physical inspection, the QA technician will use a camber gauge to measure curvature in the body of the blade material.

There is also a bend tester that checks and validates the quality of the weld and finishing, and a destructive twist tester that checks the strength and quality of a weld.

"If a blade fails during the destructive twist test, we then perform a microstructure examination of the weld area to help identify a cause of failure," McDonagh says.

The details of the tests are shared with both the welders and management teams at the distributors to help them improve consistency and repeatedly produce high-caliber welds on blades, he says.



A QA technician inspects a blade at the Lenox Quality Assurance Lab.

Not sure about the best band saw blade for your project? Learn more in this "Band Sawing Solutions Guide."

Lenox also sends its sawing application specialists out four times a year to each distributor's certified center to conduct an audit of the facility.

The audit checks that a center's welders are following the steps required to weld a quality blade, that they're performing all the Lenox inspection points, and that they're keeping the shop clean and maintaining the equipment.

"Typically, an issue that you'll encounter with a welding machine is just that it's not being maintained," McDonagh says. The result is a buildup of welding debris and other potential contaminants "that prevent you from getting a good weld."

How MSC and Lenox Produce High-Quality Band Saw Blades Quickly

"We work really close with Lenox," says Daryl Suokas, who has been the supervisor of the MSC Lenox Certified Weld Center for 14 years. "We're not afraid to send blades into the lab so they can do a micro exam on them."

That process helps the center maintain its standard of quality, Suokas says.

If there's an issue with a weld, the center team wants to get to the root cause. Whether it's the weld or the way a customer is making cuts doesn't matter, "we want to fix it. Otherwise, the customer is just going to have the same problem over and over again," Suokas says.



The custom orders that MSC can handle is limitless, says the weld center's supervisor, Daryl Suokas.

The Path Manufacturers Take to Solve Challenging Cut Dilemmas

It might start with a simple call into an MSC Customer Care Center.

"I have a cutting challenge."

"I've got a really tough application."

"This new thing just came in."

"I'm having problems cutting this material."

"I'm not sure how to handle this application."

But ultimately, each of these comes down to: "I need your help to solve my cutting problem in a highly productive, cost-effective way," says Kim Shacklett, vice president of customer care at MSC Industrial.

Shacklett oversees MSC's advanced metalworking technical specialists, who work both internally and externally with customers across multiple manufacturing applications, including cutting. The centralized inside Metalworking Tech Team manages thousands of technical interactions with all customer segments. The field-based Metalworking Specialist Team is spread all across the country servicing customers' technical application needs—hands on and face to face.

Both of these teams count on the MSC Lenox Certified Weld Center to assist them in delivering solutions to their customers.

She also has responsibility for a special-order group that responds to custom asks and requests for proposals. This team also relies heavily on the weld center to support customers' custom needs.

Bottom line, when a cutting query arises, her entire team of specialists collaborates with the account teams and the weld center to problem-solve and determine the right approach.

"But most important," Shacklett says, "MSC can deliver off-the-shelf or custom blades to the customer quickly so they can get the job done for their customers."

The weld center builds blades for customers who need something special or custom for their cutting operations.

Problem-solving is a key element of the operation, says Kim Shacklett, MSC vice president of customer care. When customers have a need that they want to solve quickly and cost-effectively, she adds, the

weld center does just that.

"But when you think special or custom, you think days—maybe even weeks," she says. "We can build custom blades within 24 hours."

"Any customer could call up looking for a standard band saw blade or complete custom band saw blade, or anything in between those bookends, and we have the capability to do it quickly and at a high quality," Shacklett says. "Our Lenox Certified Weld Center team is all over it, and they are passionate about taking care of the customer."

That's possible because the center stocks more than 180 different Lenox coils. What the MSC welders can build is limitless, Suokas says, which means "customers don't have to buy 20 blades at a time that they store on a shelf, sitting there waiting to rust. They can order two today, and then if they need more next week, they can order two more."

If an order comes in by 4 p.m. Eastern, the center typically ships the welded blades back out the same day.

Being able to order smaller numbers of blades as needed and then get them quickly reduces the budget strain on customers, he says.

"That shipping policy really is a safety blanket," Lacroix says.

"Band sawing is not always the most exciting operation in the plant, but a lot of times it's the very first," he says. "If those blades aren't available, an operation can stop in an instant, and none of the other downstream processes can happen."

"You're not going to get the axle, or that piston, or gear—or whatever you're making—you're not going to get that if you don't have quality blades on hand."

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How critical are band saw operations at your manufacturing facility? What unique challenges do you have with cutting?

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