

ART OF THE PART

Manufacturer of custom furniture benefits by bringing plate rolling in house

Industrial plate bending rolls are traditionally suited for heavy-duty applications where commercial scale production capability is paramount. But there are also outliers: Loki Custom Furniture is a prime example. “The stuff I do is boutique style, high-end furniture, so I’m not concerned with how quickly I can get 12 of these things rolled,” says Jamie Cumming, proprietor of the one-person operation in Topsfield, Massachusetts.

He says his experience with plate bending began while attending Massachusetts College of Art and Design, where he was a sculpture major and used a plate bending roll in which the rolls were manually adjusted and had issues, such as worn parts or mangled structures. “It was a school machine, so it got the living hell beat out of it,” Cumming recalls.

That condition, however, didn’t prevent him from enjoying its capabilities. “It was my favorite machine in the shop,” he says.

After graduating, Cumming eventually worked for a manufacturer of wood furniture and at a variety of different shops, including a four-year stint at a manufacturer of titanium bicycle frames.

“My goal when I started my furniture

making business was to incorporate my interest of combining materials, [particularly] woods and metals.”

After working in a series of locations, he says he decided to settle with his family in Topsfield. They purchased a house with enough land to build a barn for Cumming’s 1,800-sq.-ft. shop. “I’ve got more and larger equipment now than I did in larger spaces and it all fits fine. I’m in my forever shop.”

Initially, that equipment did not include a plate bending roll. He outsourced plate rolling to a company that focuses on high volume and fast turnaround, Cumming notes. The result was plates that were frequently rolled incorrectly, Cumming says, adding that he had to fight to get what he wanted.

ON A ROLL

In 2012, a client commissioned Cumming to make a large steel bar. That gave him an excuse to look for plate bending equipment. He contacted Trilogy Machinery Inc. in Belcamp, Maryland, because Trilogy formerly distributed the brand he used at school, but that type of equipment was beyond his budget. He wanted a machine that could roll primarily 1/8-in.-thick plate, and Trilogy recommended one the distributor carries from



Loki Custom Furniture frequently rolls conical sections on its Lemas Model TR 120/4 three-roll plate bending roll from Trilogy Machinery.

Taiwanese builder Lemas, which was in his price range.

A Model TR 120/4 three-roll plate bending roll arrived three months later; that occurred about a decade ago.

Lemas reports that its initial pinch bending rolls feature hydraulic adjustment of the rear bending roll and the lower pinch roll. In addition, the rear roll is hydraulically tiltable for cone rolling, and the hydraulic drop end makes it simple to remove a completed cylinder from the rolls.

“The big selling point for me was that it has the ability to roll conical sections,” Cumming says. “It’s been a blast rolling cones on the machine. It’s a little bit of a nebulous art form in its own fun way.”

He says he also appreciates the hydraulic drop end. “You just push a button and the whole end of the machine drops down. That’s amazingly simple and easy to use.”

As it turns out, the radius was so large for the big, curved bar that he barely needed the

BENDING/FOLDING

machine for rolling those plates, Cumming explains. Since then, he has used the machine to roll stainless steel, silicon bronze and titanium, as well as hot- and cold-rolled steel.

MATERIAL DIFFERENCES

One job required rolling titanium plates for an instrument maker that was producing a line of titanium shell drums, he says. Rolling titanium is “mildly nerve wracking” because it is expensive, but the issue he experienced was having the drum shells returned for rework because they sprung open after delivery. “Titanium does that.” The solution was shrink wrapping them to maintain shape until they were seam welded by the customer.

He says rolling stainless can be challenging, depending on the grade, with 316 being more difficult than 304, for example.

There’s also a noticeable difference in rolling cold-rolled steel compared to hot-rolled, Cumming adds. Rolling cold-rolled steel takes longer and he must raise the rear bending roll significantly more than when processing the hot-rolled variety.

Cumming describes silicon bronze as the “dreamiest material to roll” because it is so malleable. “You can over roll something and it doesn’t take much force to relax it back to where you need to get it.”

The machine enables rolling 4-ft. widths of 1/8-in.-thick material, he explains, while thicker material can be rolled at shorter widths. Of course, as thickness increases, so does workpiece weight. “I don’t have a crane. I don’t have a forklift. So, I don’t really have the capacity to handle large sections.”



Loki Custom Furniture often combines wood and metal in its creations, such as this table.





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Jamie Cumming, Loki Custom Furniture

Loki Custom Furniture uses the Lemas plate bending roll to create pierced tables.

LEARNING CURVE

Conical steel tables are a relatively simple and popular item for Loki Custom Furniture, Cumming notes. When he needs to make two of them, for example, Cumming will purchase three plates. “Invariably, I screw one up.”

But that’s all part of the process. “I learn a lot by making mistakes and doing something over again,” he says.

The incorrect piece, however, is not scrapped but is recycled and repurposed, along with part remnants, for producing sculptures or something else, Cumming says.

He also used the plate bending roll for

creating more complex items, such as making mirrors for one client that have “wacky amoeba shapes.” Creating the shapes required about 45 different radii. Cumming describes the process as segmented, or multiple-radii, rolling in which different sections on a particular length get rolled to different degrees.

Whether it is a straight or conical roll, he notes that he has developed techniques to eliminate any flat spots.

In addition to making his furniture aesthetically appealing, Cumming takes the time to regularly clean the Lemas plate bending roll and grease it as needed. When representatives of Trilogy Machinery see the machine this spring during a scheduled visit, they might be taken aback. “I told them you’re going to laugh when you see the machine because it looks almost new.” **FFJ**

Loki Custom Furniture, 617/666-2419, lokifurniture.com.

Trilogy Machinery Inc., 888/988-ROLL, trilogymachinery.com.

Nonetheless, if workpieces are too heavy or cumbersome, Cumming says he brings in assistance, such as when rolling the 13-ft.-long plates for the large steel bar project. “That’s obviously a two-person thing.”

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