

Because the uncoiler handles 100-inch coils that weigh 50,000 pounds, it's equipped with an outboard mandrel support bearing. To develop the necessary pressure, the hold-down pivots on its own base rather than being cantilevered from the payoff frame.

CHAMPAGNE METALS CONSOLIDATES ALUMINUM, STAINLESS PROCESSING

Massive cut-to-length line combines capabilities of multiple service centers

BY J. NEILAND PENNINGTON

“The Line” (with emphasis on The). That’s how the folks at Champagne Metals refer to the 100-inch bright metal cut-to-length installation at their expanded facilities in Glenpool, Okla. It’s also how the company intends to market its enhanced capabilities. Champagne Metals has created a logo and filed for a trademark on The Line and has positioned itself as a major source of alu-

minum and stainless precision blanks, which are 70 percent of its business.

In aluminum blanking, the new line bundles together processes that before had to be performed by at least two sources, according to Michael H. Champagne, president and CEO. “None of the Big Three aluminum mills can finish their widest coils,” he says. “They can produce wide master coils, but over a certain width, they have to send them to a slitter to be edge-finished. And then they have to send them

to a second facility for leveling and cutting to length.”

There are only a few service centers in North America that can handle aluminum up to 100 inches wide, so the mills have few options. “The people who do the slitting can’t do the leveling and blanking, and the people who do the leveling and blanking can’t do the slitting,” Champagne says.

Champagne Metals can do all three, enabling it to receive mill-direct shipments. Capabilities combine edge trimming, leveling and blanking into one line with a 0.375-inch-thickness capability in aluminum—0.313 inch for full-hard metal—and a 0.25-inch maximum in stainless steel. The new equipment accepts coils up

to 84 inches OD and 50,000 pounds.

The original intent in acquiring the cut-to-length line, built by Herr-Voss Stamco, Callery, Pa., was to serve Champagne Metals' railcar business. The company has been a supplier to that industry almost since its founding in 1996, but it was never able to supply full-size car side blanks, typically as wide as 99 inches wide by 45 feet long.

Before the advent of The Line, railcar builders were holding two to three months of inventory to deal with long supply lead times. According to Champagne, eight or

nine weeks were required to obtain a master coil and another three to four weeks of processing to receive finished sheet.

Lopping lead times

Champagne Metals has pared away four to five weeks of lead time. "Now, we can deliver to them just in time," Champagne says. "We're looking at a 24-hour turnaround because we're edge finishing, leveling and blanking, all in one operation. We've combined the work of at least two processors."

Champagne Metals maintains customer inventories in its own warehouse in the form of coils. "The railcar people can keep coils here," says Clark Borgelt, vice president of sales and toll processing at Champagne Metals. "They have the flexibility of cutting sheets as needed for specific jobs and retaining the rest of the material in coil form. That way, they aren't duplicating inventory in sizes they may not need immediately.

"Customers don't have to carry as much inventory in various widths," he adds. "With a wide master coil and the ability to edge trim, we can produce a variety of widths from a single coil. Rather than carrying a 91-inch or a 92-inch coil, for example, we'll just edge trim a 96-inch coil."

That edge trim is to finished dimensions, avoiding a possible second pass. But to produce the required accuracy, a conventional edge trimmer with two stub arbors wouldn't be adequate. Champagne Metals' edge trimmer is a packed-arbor slitter with an arbor 10 inches in diameter by 104 inches wide. A standard stub-arbor edge trimmer generally takes a maximum 2-inch bite on each edge of a coil; Champagne Metals' slitter cuts up to 3 inches per side. The company capitalizes on the accuracy of the process, promoting it as "edge slitting" instead of edge trimming.

Between the injector-head slitter knives are full-width stripper rings to support the wide, heavy-gauge strip and enhance the accuracy of the cut. "One of Mike's products is aluminum tread plate," says Jim McKenna, vice president of sales and engineering at Herr-Voss Stamco. "The stripper rings do a great job of pulling that metal through the slitter heads."

Square-edged blanks

With the combination of precision edge trimming and an electronic center guide system, Champagne Metals is producing remarkably square blanks. Take the experience of an aluminum tank trailer manufacturer who rolls tank bodies from sheet. Where the edges meet, the joint must be absolutely square for a leak-free weld. Until the advent of The Line, the company was squaring its blanks in a 25-foot

THE START-UP: TUNE ON TUESDAY, SHIP ON SATURDAY

CHAMPAGNE METALS' EMPLOYEES DIDN'T SIT BACK and watch Herr-Voss Stamco technicians install their 100-inch line. They invested considerable sweat equity in the installation.

Although this is the company's second all-Herr-Voss Stamco line, it's the fourth line containing the supplier's components. Champagne Metals has a history with Herr-Voss Stamco and is familiar with the hardware.

"This line is so large that we had to start shipping some of the equipment months ahead," says Jim McKenna, vice president of sales and engineering at Herr-Voss Stamco.

"Champagne Metals had all of the foundations installed and ready to go. They set the machinery and even completed the initial electrical work."

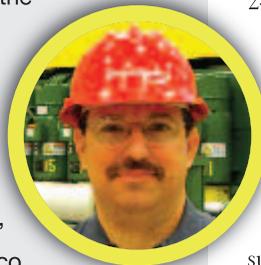
Michael H. Champagne, president and CEO of Champagne Metals, credits Plant Manager John Hancock for the success of the installation. "He's a mechanical genius," Champagne says. "We've always brought Herr-Voss Stamco people in for our other lines, and John has learned from them. Now we're our own riggers."

"When we showed up for the final phase of installation, what we really did was assist in the alignment of the equipment and the termination of the wiring," McKenna adds.

He tells this story as proof of the project's success: "We sent our drives expert out to tune the drives on a Tuesday, and as soon as he walked through the door, Mike asked him if they could run a coil on Friday. I immediately got a phone call asking if Mike were off his rocker. 'We can't possibly run by Friday,' said the drives guy. But sure enough, not only did they run on Friday, Champagne Metals shipped [a 97.625-inch-wide coil] on Saturday."

McKenna estimates the final installation as a two-week effort—about 30 percent of the time most large assemblies require—and the service center was turning revenue dollars almost immediately.

Fred Suhre, field service manager for Herr-Voss Stamco, emphasizes an advantage of doing your own installation. "When the customer is involved, it flattens the learning curve. I think that was one of the keys to why the start-up was so quick. The customer participated in the installation with our support, so when it came time for start-up, everybody was on the same page. It's one of the fastest start-ups we've ever had."





[LEFT] Line Operator Cody Henson at the controls of the precision roll leveler. The frame, hydraulics and 300-horsepower drive are typical for a leveler with 11 work rolls; this unit contains 17 rolls for deeper penetration and enhanced stress relief.



[RIGHT] The semi-bowtie blade of the downcut mechanical shear fires at 200 strokes per minute, will make a maximum of 60 cuts per minute and runs at a line speed up to 200 feet per minute. The top knife is adjustable for clearance.

shear.

These blanks aren't small, running 240 inches long by 84 inches wide by up to 0.25 inch thick. "The labor to pick up those sheets, I can't imagine," Champagne says. "They're close to 1,000 pounds per sheet. The company was scrapping metal, it was putting marks on the material and the process was time-consuming.

"We can give the customer a precision square product at the correct width and length, and they don't have to touch the metal except for rolling and welding," he continues. "Because they were damaging sheets, they had to carry more inventory."

Scrap counts, metal on hand and processing times have all been reduced.

Robust leveling capacity is part and parcel of the new installation. Companies that level material of Champagne Metals' maximum width and gauge typically use levelers with 11 work rolls of 4.5-inch di-

ameter. But Champagne wasn't convinced that this standard approach would provide the flatness and stress reduction his customers demanded. Instead, he ordered a 17-roll precision leveler with 3-inch-diameter rolls and a 300-horsepower drive. The combination of high power and small rolls, he reasoned, would be the right recipe for leveling 0.313-inch-thick full-hard aluminum.

He was correct, says McKenna. "It's a large leveler with a lot of muscle, but the 3-inch roll cluster gives the machine a lot of finesse. It's the best of both worlds."

When you walk on the deck surrounding The Line, you're supported by one of Champagne Metals' success stories. "We had some suppliers who had products that hadn't been [precision roller] leveled in the past," Champagne says. "One of those materials was 6061-T6 aluminum tread plate. In doing a trial on tread plate, we fabricated

the deck from material we had leveled. When the supplier came in, they saw not only that we could level tread plate, but it was also flat enough for raised flooring."

The customer had been leveling tread plate in a stretcher line. Now, instead of buying stretched sheets, the company orders Champagne's roll-leveled coil, at a considerable savings.

Regarding stress reduction, Champagne says the large cluster of small work rolls all but eliminates residual stress. Having a leveler with 17 work rolls of 3-inch diameter in a large frame with high power produces deeper penetration and works a higher percentage of the strip thickness. "We're able to get the results we want without inducing stress or significantly changing the mechanical properties of the material," he says.

Expanding horizons

The initial purpose of The Line may have been to blank railcar sides, but it has punched Champagne Metals' ticket to a variety of other markets. The company began as a supplier to horse trailer makers—a major industry in Oklahoma—and pleasure boat producers, but it has expanded into rail, ships, bulk transportation and aerospace. It also toll processes for mills and other service centers, so its customers are in both direc-



tions along the supply chain.

Both mills and OEMs had a profound influence on the design of The Line. Its final form, says Champagne, was the result of a four-way collaboration.

“The Line was designed by consensus,” he explains. “All involved parties were in the same room at the same time, specifying their needs. We had the mills right here, we had Herr-Voss Stamco right here and we had the OEMs right here. We said, ‘Let’s build something that nobody else has.’”

A case in point: Several mills suggested adding a flattener or breaker at the line infeed, along with a crop shear. “This would allow us to toll process hot-band aluminum and stainless with heads and tails that aren’t to the finished gauge,” says Borgelt. “We would crop the material prior to entering the leveler, which would eliminate the risk of contaminating or damaging the precision leveler rolls.”

The breaker, he adds, is for threading only; the leveler does the real work.

Customer input also resulted in the line’s prodigious length capacity. The air-float drop stacker is 20 feet long and can produce a 40-foot blank with the end stop down. Retract the end stop, and the line can run a sheet the full length of the 100-foot runout table that extends the

A 30-horsepower motor powers the air float system on the 20-foot drop stacker. With the end stop down, the stacker can accommodate a 40-foot blank, and retracting the end stop allows cutting blanks the full length of the 100-foot runout conveyor.

length of the building.

“On the long sheets, we’re currently looking at just over 610 inches,” Champagne says. “We’re limited only by our ability to transport the metal and the length of our runout.”

“One of the reasons for orienting the line the way we did is to utilize our dual-hoist cranes,” says Borgelt. “The trolleys move independently, so we can pick up a 40- or 50-foot sheet and move it laterally right onto a truck bed.”

Going live

Another customer-friendly capability is streaming video of the cut-to-length process. Three wide-angle cameras, located at the uncoiler, the looping pit and the stacker, feed live video that the line operator views from the control panel and that customers can watch in real time over the Internet. If a defect is discovered, a decision can be made to continue the run or stop and what corrective action should be taken. The

videos are recorded and retained in Champagne Metals’ archives should a question arise later.

Although design of The Line began before last year’s economic crisis, Champagne Metals forged ahead with its ambitious plans. Installing the new equipment is the company’s strategy for fighting the business downturn.

“One of the reasons that we kept going with [the project] is that it’s generating new business for us,” says Champagne. “If we hadn’t built The Line, we’d be like everybody else — waiting for customers to call and order more metal.

“Instead of doing that, we’re going out to all of our new markets. We’ve expanded our ability to sell new products. When the economy turns around, we’re going to be right there.

“We’re not waiting for business to come to us; we’re going after business,” he concludes. “And we’re getting a positive response.” ■

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