

Hillman Brass needed to rethink its sawing operation in order to cut thick copper nickel and naval brass.

KEYS TO THE CITY

Working side by side, leveraging partnerships, helps a service center open the gates of productivity

BY CORINNA PETRY

Founded in 1912, Hillman Brass has experienced highly impactful market changes over 112 years. Although some changes inside an operation are much more subtle than wars, depressions, recessions, pandemics, social change and technological advances, they are perhaps just as impactful from a business perspective.

Part of Triple S Holdings' nonferrous metals division, Arbor-Metals, Hillman Brass serves the Navy shipbuilding industry, OEM water filtration, heat exchanger and condenser, and power generation industries.

Steve Clark, general manager for the Honey Brook, Pennsylvania-based company, has 30 years of experience in the metals sector and joined Hillman Brass in February 2023. He recognized the shop was using older cold saws for cutting aluminum, equipment dating back to the 1970s.

"Safety was not part of the design like what is available today. The torque and speed controls were nonexistent, and we used one blade for all thicknesses and grades of material. You turn it on, move it forward, then retract. The saws were not easily modified for different types of material."

Since those saws were installed, says Clark, "our company evolved from a simple copper and brass distributor to more alloy-driven copper grades, more specialty grades—harder, tougher material that doesn't lend itself to being cut like aluminum."

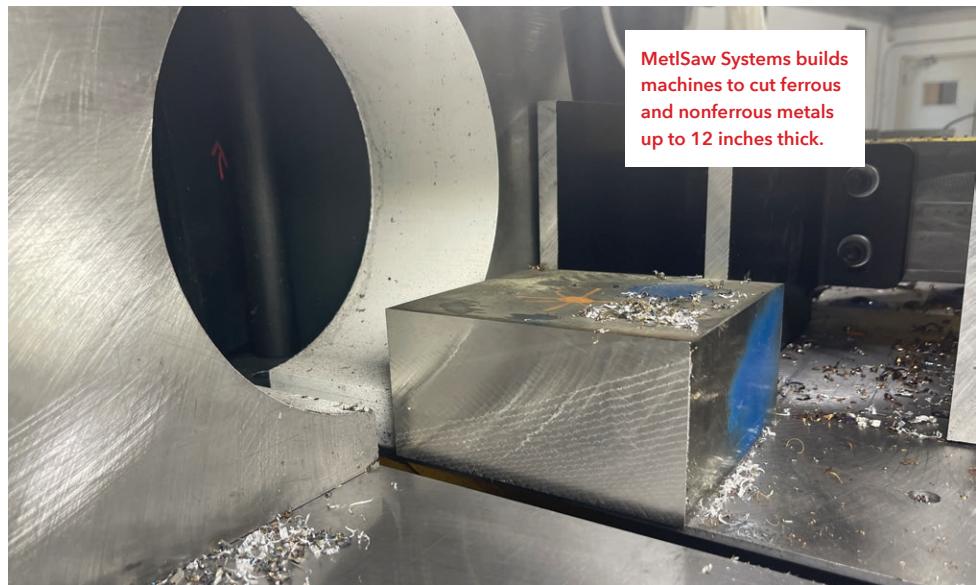
Clark and his team understood that as the old equipment failed to perform to standards expected with the high-quality products that Hillman Brass was now processing, it was necessary to buy more advanced equipment for safety, control and manufacturing capability.

"This was not just a decision about economics

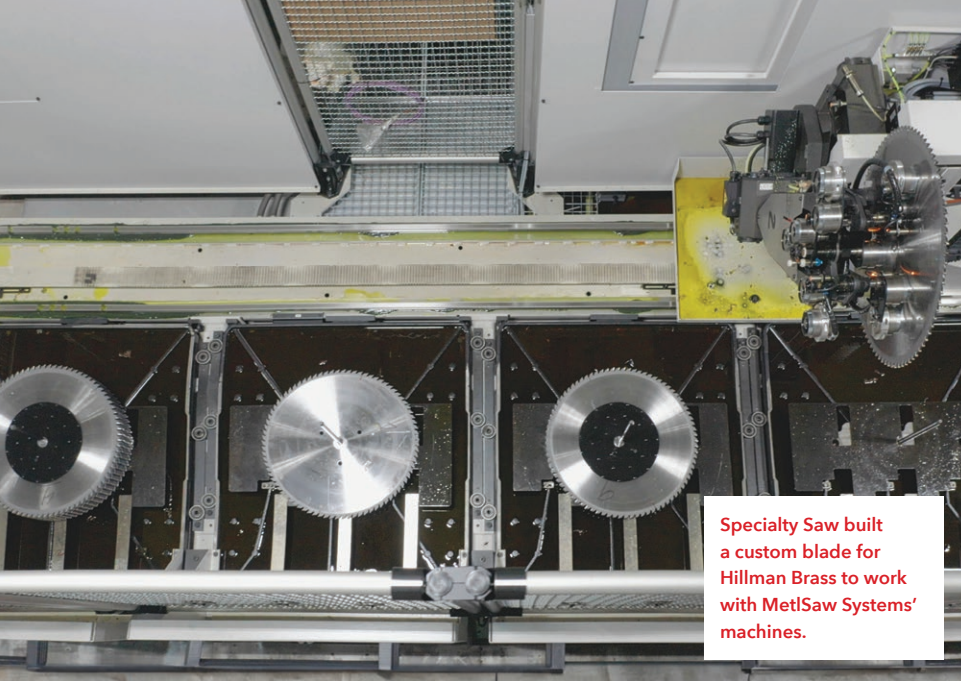
or that our operators didn't do a good job. It was more because the equipment was no longer safe and became unmanageable to maintain."

GOING 'ROUND IN CIRCLES

Before resolving its problem with the cold saw being "less than desirable to process plate, we had a different issue," according to Clark. One main thrust of Hillman Brass' work is cutting circles. "Our customers use materials that are round or want rings made into flanges, bulkheads and tube sheets, which go into heat exchangers and other applications." Cutting



MetSaw Systems builds machines to cut ferrous and nonferrous metals up to 12 inches thick.



Specialty Saw built a custom blade for Hillman Brass to work with MetlSaw Systems' machines.

circles with a waterjet is expensive and slow. Another option is to use a bandsaw. Operators scribe a circle and manually move the material into the bandsaw with an exposed blade. "Triple-S is a safety oriented company," says Clark, and its leaders didn't want operators to place and cut plates by hand "in an unsafe work position." This process is also slow, he notes. So Hillman Brass called in MetlSaw Systems Inc., Benicia, California, for a consultation. Clark says Tom Kvech, sales and marketing director for MetlSaw Systems, "looked at our old saws and introduced MetlSaw's Circle Cutter automated saw, the only semi-automated solution for rings in the industry." Kvech also mentioned how important the blade manufacturer is to the process and cited Specialty Saw Inc. as a preferred partner.

PLATE CUTTING

MetlSaw Systems was founded in 1975 and although it was sold in 1984 to Inductotherm Corp., the founding family still runs it, including President Lisa Kvech. "We have close to 1,000 saws in production worldwide. The 35th saw we put into production is still running today," she says. "Our main models are plate saws that go to service centers."

The typical size is 12 feet by 14 feet, able to cut plate up to 12 inches thick. "We have a cutoff series of saws mostly for the extrusion market, but service centers use them for bar cutting. Then we have precision circle cutting saws and miter saws," Lisa Kvech says.

MetlSaw machines can use several different brands of blades. "However, we leverage our partnership with Specialty Saw to design blades for challenging cutting issues," she says.

Tom Kvech notes that Specialty Saw "will visit the customer to see what the issue is and help solve problems. Our customers appreciate that level of service."

The relationship with Hillman Brass began with an inquiry for an aluminum plate saw. Hillman's people noted that they were also cutting naval brass and copper nickel, which requires a different approach. "The blade must run at a slower RPM," he says. Specialty Saw designed blades specifically for those materials while MetlSaw "had to reengineer its equipment to cut with a constant torque at a much lower RPM."

After MetlSaw's engineering team studied how to cut at a slower speed, "we made the necessary mechanical and programming changes and conducted trials with new blades," Tom Kvech says.

CONSISTENCY

Keith Cotter, vice president of business development at Specialty Saw, Simsbury, Connecticut, a third-generation family company led by President Jeff Nagy, says his company's main customer base is metal producers and service centers. "While many saw blade manufacturers make blades to cut every material under the sun, we are focused on high precision, high production and long-lasting blades that cut aluminum, copper, brass, stainless steel and titanium."

Cotter says the company's "identity is consistency. Every blade you use runs consistently every time. If you got 20,000 square inches with the first blade, you will get the same volume from the second, third and fourth time we service the blade. We achieve this by controlling

every aspect of the manufacturing process for both new and sharpened blades. The service work is performed on the same equipment by the same operator and to the same standards as when it was first produced."

Specialty Saw also educates customers on how to extract as many lives as possible from each blade. "We go from the supervisory to the operator level to educate everyone on best practices in production sawing, to the extent where if your blade runs at 100 percent before you remove it, your options for service go down a little bit. But if you learn certain parameters, such as taking the blade off the machine at the 90 percent usage mark, you can service the blade again and again without rebuilding it, which is more expensive."

Cotter says the company has blades in the field that have been in service exceeding 10 years.

PARTNERSHIP

Specialty Saw and MetlSaw Systems have worked together for over 40 years. "Our relationship over the past 10 years has evolved to more of a partnership than just a supplier-customer relationship. Now, we work together to solve customer sawing problems," Cotter says.

"You can have the perfect machine but if the blade is not working in tandem, you won't cut successfully. Likewise, you can have a perfect blade but if the machine is not working well with it, performance suffers. So it is a symbiotic relationship from the design phase forward," he continues.

Specialty Saw engineers research exactly what each customer is doing with the blade and machine, the thickness of materials being cut and how much of each gauge is processed.

"We will make a saw blade that is absolutely focused on their needs. It's not random. It is optimized as to what work is going across the saw. You cannot use same blade for ½-inch-thick plate versus 10-inch plate. If a customer processes only 2- to 6-inch plates, we give them blades that cut in the range as fast and as accurately as possible," Cotter says.

Some of the largest service centers in the world "tell us that once we optimize their blades to correct sizes, tooth counts and grinds to our standards, they have had to hire more people in packaging and shipping because they are putting that much more material out," he says.

As a result, material moves off the floor more

quickly and machine uptime rises because customers don't need to change blades that often.

"Customers can use one blade for different sizes and materials if we train them how. We might be able to get 100 square inches per minute, blowing away what they are used to," Cotter says. And, "when every resharpened blade works as well as a new one, you can plan blade changes before your shift. Reducing downtime has meant a massive improvement in cost savings for our customers."

ON-SITE VISIT

After Lisa and Tom Kvech put Cotter in touch with Clark, Cotter visited the plant "to survey all their sawing equipment, their practices—how they load and unload the machines, their current cutting feeds and speeds, the coolants they use, and everything they are doing, as it relates to sawing" he says.

"I found that none of Hillman's equipment was process capable no matter the blade they were using, for the work they wished to accomplish. Effective performance was not possible." Because the workforce consisted of new hires, they did not know how to run the band saws. "So we brought in new band saw blades, trained the crew how to run the machines and then moved on to their two circular plate saws.

"They were cutting copper-nickel alloy (which you cannot cut at aluminum speeds), and the old equipment was not able to change speeds. [Clark] asked whether we could make them a blade. Unfortunately, I had to say no, because an aluminum cutting saw cannot cut their copper nickel effectively, regardless of the blade."

According to Tom Kvech, "Keith, Lisa and I realized we needed to develop something that was not out in the market before. These are much harder materials. We just had to make special modifications to the machine and use the new blades."

TESTING, TESTING 1, 2

The team—Clark, Kvech and Cotter—started conservatively in terms of speed cutting copper nickel plate. We started at 10 inches a minute and got up to 30 inches per minute. 10 inches is at near mirror finish. With copper nickel, the standard is 1 inch per minute," Tom Kvech explains.

"The productivity goes up as does the precision. The development of our technology and the blade technology creates new possibilities,"

“THERE ARE NO UNNECESSARY BELLS AND WHISTLES. IT IS A WORKHORSE.”

STEVE CLARK, HILLMAN BRASS

Lisa Kvech says. "Hillman trusted us and we trusted Specialty Saw. After we finished testing, we were blown away by the results. This is a game changer to do this for copper nickel and brass, at this speed."

"From concept to engineering to application, once they actually built the machine and we built a one-off custom blade for this application, we flew it out to California to perform proof-of-process testing," recalls Cotter.

"We were all nervous about it. The blades and the machine performed phenomenally well and beyond expectations. They can run at low and high speed and this gives them more options about the material they can run," he says.

BACK IN BUSINESS

Clark credits Specialty Saw with "a strong understanding of blade performance when cutting on a cold saw. The circle saw was our first purchase from them and put us back in business very quickly from having hired an unskilled new workforce."

He says Cotter "knew we needed speed control without loss of torque to do it faster, more efficiently, with far less hands on: No pushing plate into a saw, no unprotected saws breaking and no teeth flying off unprotected."

From order to delivery, says Clark, MetSaw had the new machine manufactured and installed in four months. "That's amazing considering the only other circular saw builder in the world that could do this was offering us a lead time of one year.

"The beauty of the MetSaw is that it is laden with technology that is effective but there are no unnecessary bells and whistles. It is a workhorse," Clark says.

INCREASED VOLUME

Since the new saw has been operating regularly, "we had two months where our shipped tonnage in total has increased," Clark says. "So far in June, we shipped a record amount of processed material."

Hillman Brass was able to take a lot of work off the waterjet and moved some work from its old bar saw to the new MetSaw plate saw. "Its versatility, in terms of being able to use it for multiple types of metals, exceeds anything

we were able to do before."

In terms of how Hillman measures performance and potential, the new saw's "standard cutting speed exceeds our past cutting capacity by 600 percent in terms of effective time, due to the amount of time that the blade is engaged, and because it has advanced systems."

MetSaw came in to train Hillman Brass operators. "Training did not take weeks," Clark says. "We were capable of operating the saw within 48 hours."

VALIDATION

"The most exciting thing about this process was validation," Cotter says. "We knew from our end what had to be done to cut copper nickel plate at high speed. It had not been done before at this speed. MetSaw took an engineered approach based on our guidance on where the machine had to be for surface feet, and how to manage the heat involved in cutting red metals at high speeds."

Cutting 3-inch-thick copper nickel that takes four hours on a waterjet now takes less than 10 minutes on the MetSaw. "The gates to productivity have opened wide," says Cotter.

Future applications look promising, says Clark, noting that he continues to have conversations with MetSaw and Specialty Saw "as we process new materials."

What makes the partnership so effective is that MetSaw and Specialty Saw "stay engaged with customers to troubleshoot. It's not one and done—you bought it, you take care of it.' We buy bar saws that are delivered on a truck and we do everything else ourselves," Clark says. "These guys, by comparison, are in the customer service business. If they started making waterjets, that would make my life easier." ■

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