

SCS Polishes TMW's Prospects

The surprise revelation that brushing hot-rolled steel can give it almost magical corrosion-resistant properties has transformed The Material Works' mission from just toll processor to metals innovator.



Photos by William Perry

SIX YEARS OF RESEARCH, trial and error are finally starting to pay dividends for The Materials Works, Ltd., Red Bud, Ill., whose development of its patented SCS process has brought a dual focus to the company's strategy.

"TMW's mission is two-pronged: to be a toll processor and an innovator of new processes," says President Kevin Voges. "Both parts have very good synergy and feed off each other."

TMW began as an offshoot of Red Bud Industries, a maker of metal processing equipment. Kevin's father, Kenneth Voges, a pioneer in coil processing technology, founded RBI in 1959. In 1992,

1 An operator monitors the new SCS coil line at TMW's Red Bud processing center. After uncoiling, the steel passes through a roller leveler and edge trimmer before entering the SCS brush machine, which removes dirt, rust and scale. The brushed material is then recoiled for shipment to the customer. The line can run 75-inch-wide, 60,000-pound coils at 150 feet per minute, producing up to 20,000 tons of SCS material per month.

The Economics of SCS

THROUGH ITS PATENTED SCS strip-cleaning system, TMW has essentially created a new class of steel product—one that no one else can sell without paying TMW a royalty.

TMW hopes to profit from its patent in two basic ways: by selling licensing fees or through joint ventures, explains TMW President Kevin Voges. In order to produce SCS, a company must pay TMW a licensing fee of \$1.75 million before Red Bud Industries is authorized to build it a new SCS processing line.

TMW would prefer to set up joint ventures with processors, in which it waives the licensing fee in exchange for an ongoing percentage of the profits from each line. In some cases, TMW will reinvest revenues from the licensing fees to help a joint venture partner cover the cost of the equipment, in exchange for a larger percentage of the business.

The cost of an SCS sheet line is about \$1.4 million, or \$3 million for an SCS coil-to-coil line, Voges estimates.

TMW envisions a far greater return on its patent by helping other companies establish SCS processing businesses, which will produce an ongoing revenue stream, vs. simply licensing the process. In fact, it will restrict licenses to companies in secondary markets that are unlikely to compete with joint venture

partners in major markets.

TMW is taking great care to position and maintain SCS as a quality brand. "We keep the quality consistent. We are very critical about the companies that are going to be SCS-ing to make sure they are doing it the right way," Voges says.

TMW estimates the cost to produce SCS material at about \$3.50 per ton, while the finished SCS product sells for \$20 a ton. "In two years, at half capacity, we would make as much on a joint venture as we would from a licensing fee. The difference is that after two years, it (the venture) continues to generate money from the operation of the SCS equipment," Voges says.

TMW expects to license or partner with mills, toll processors, service centers, tube producers and OEMs of many types, who all stand to benefit from the inherent efficiencies and environmental benefits of SCS steel. Running at full capacity, an SCS coil line can process roughly 20,000 tons a month at a cost of less than \$75,000. To pickle and oil the same tonnage would cost around \$350,000. That \$275,000 savings enables a processor to pay off the cost of an SCS line in less than a year, Voges says.

he spun off TMW as a separate, independent entity. In 2000, TMW expanded from its original 90,000-square-foot facility in Red Bud to a 216,000-square-foot processing center on the Kaskaskia River a few miles outside of town. Including a Granite City, Ill., joint venture with Heidtman Steel, TMW operates facilities totaling about 400,000 square feet. Its 150 employees process 350,000 tons of steel annually, offering conventional slitting, blanking, cut-to-length and leveling services, in addition to the company's proprietary SCS brushing process.

TMW has created considerable buzz in the industry in the past two years with its strip-cleaning system for brushing both cut-sheet and coiled steel. SCS brushing gives hot-rolled black commodity-grade steel a clean, dry, cold-roll-like surface that inhibits rust without the need for oil or coatings. The process is economical, kind to the environment and should make a majority of pickling and oiling operations obsolete, Voges claims. To date, he adds, 55 percent of SCS appli-

cations have replaced pickled-and-oiled, 35 percent have replaced conventional hot-rolled black and 10 percent have replaced cold-roll.

The original SCS system, launched in 2003, was designed to brush stretcher-leveled cut sheets. In August, TMW commissioned its first coil-to-coil SCS line in a joint venture with Heidtman Steel, Toledo, Ohio. TMW operates the line for Heidtman out of its Red Bud processing center.

Finding a way to brush a continuous ribbon of coil rather than cut-sheet blanks opened up a huge new market potential, Voges explains. "A lot of applications need steel in coil," he says, such as high-volume stampers and tube producers. "Once it's in sheet form, you can't run it

Quick Facts

The Material Works, Ltd.

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Key Personnel: President Kevin Voges, Vice President of Engineering Alan Mueth, Vice President of Operations Eric Fritsche, Director of Sales Chris Liefer
Size: 150 employees; annual processing 350,000 tons
Facilities: 400,000 square feet including three facilities in Red Bud area and joint venture in Granite City, Ill.

Services: Slitting, blanking, cut-to-length, stretcher leveling, brushing

Equipment: One slitting line, three blanking lines, three cut-to-length lines, two stretcher-leveler lines and two patented SCS processing lines

New SCS Coil Line Specs: 48 feet wide by 90 feet long, throughput 20,000 tons of hot-roll black per month, 60,000 psi, thickness 0.030- to 0.250-inch, coil width 24 to 75 inches, maximum coil size 60,000 pounds



⬇ A technician examines the interior of TMW's patented SCS brush machine, which uses either an abrasive 3M Scotch-Brite pad or brushes with nylon-coated silicon carbide bristles to remove rust, dirt and scale from the steel.



⬆ The SCS system can take a dirty, rusty commodity-grade coil and give it a napkin-clean surface ready for painting. The SCS process leaves a microscopic layer of scale on the steel, which inhibits rust, the company says.

Each line is custom built by Red Bud Industries, TMW's former sister company. The original sheet line was designed to brush the metal with a 3M Scotch-Brite pad. TMW has since developed an alternative brush using nylon-coated silicon carbide bristles that follow the contours of material that is not perfectly flat. Both type of brushes are used, depending on

the needs of the system. The brushing process removes all but a microscopic layer of scale, which inhibits rust and provides a clean, paintable, regular-bright surface comparable to cold-roll steel, but at a much lower cost, Voges says.

The Heidtman-TMW coil-to-coil line is made up of an uncoiler, crop shear, roller leveler (built by Butech Inc.), edge trimmer, SCS brush machine, which brushes and rinses the steel, a drying table and recoiler. It has a capacity around 20,000 tons per month, but is currently producing about 2,000 tons as customers, and potential customers, test the SCS material's performance in their particular applications. "This is a very

new product and companies are proceeding carefully," Voges says, "though customers are already seeing great results." He forecasts that the line will be running at full capacity by mid-2006.

SCS generates other toll processing opportunities, he notes. "When you get an order for SCS material, that coil goes over to the slitter and then to the stretcher leveler. It's one order, but we get all three processing jobs because of SCS."

Though the sheet line has been in operation for less than two years, and the coil line for only a few months, the technology is already beginning to proliferate. In addition to the two lines housed at TMW's facility—the original sheet line and the first coil line—Holvoet, a service center in Ghent, Belgium, is producing SCS cut sheets. Heidtman has ordered a second SCS coil line in a joint venture with Fulton County Processing in Delta, Ohio, and plans to install a sheet line at its Butler, Ind., facility next year. Layhill Processing in Knoxville, Tenn., will commission its new SCS sheet line in January. TMW has also received an order from Servosteel, a British toll processor. TMW is likely to invest in another line soon through a joint venture with an unidentified Portage, Ind., company, he adds.

Borrowing the term from a popular business book, Voges calls his SCS process a "technology accelerator." Though it's an exciting new venture for TMW, as well as Red Bud Industries, which supplies all the equipment, Voges vows his company will not lose its focus on serving toll processing customers of all types.

"Our SCS technology is a wonderful process that will most definitely help to drive TMW, but it won't become TMW," he says. ■



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