



Recycling Industry



Garden Street's Spring Grove, Ohio, recycling operation incorporates advanced Eriez magnetic separation equipment.

Garden Street Iron & Metal Processes 8,000 Tons of Scrap Each Month Using a Variety of Eriez® Recycling Equipment

Starting a family business and keeping it going for more than 55 years takes dedication, resourcefulness, business acumen and the foresight to invest in modern technology. These traits are particularly apparent when one takes a walking tour of the sprawling Garden Street Iron & Metal recycling complex, located just west of downtown Cincinnati.

Set on 22 acres with three nearby rail spurs in Spring Grove, the complex is a beehive of activity as both consumers and businesses truck in ferrous and nonferrous metal for re-processing. Owned and operated by the Weber family, the recycling operation has undergone a major transformation since the end of 2013 with almost \$19 million invested in new equipment and infrastructure, including a variety of Eriez® recycling products.

The upgrades and state-of-the-art recycling equipment now enable Garden Street to process more than 8,000 tons of scrap each month, according to Earl Weber Jr., President and Manager of the company's Ohio operations. His brother, Rob Weber, runs Garden Street Iron &

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Metal of Southwest Florida, Inc. That company has operations in Fort Myers, Naples and Cape Coral.

“We spent about three years getting everything together for the upgrades at our Spring Grove operation and

finally broke ground on December 6, 2013,” recalls Earl Weber. “We talked to companies at the ISRI (Institute of Scrap Recycling Industries) show for two years, including Eriez. We like the fact that the equipment we chose is made in the U.S. Since Eriez is based in Erie, Pennsylvania, we know we could count on them for support, if called upon.”

Putting the pieces together

Garden Street began working with American Pulverizer and Hustler Conveyor to install an APCO 98 x 110 heavy-duty automobile and scrap shredding system, an integral piece of equipment that Garden Street was lacking to grow its regional business, according to Earl Weber. That

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collaboration also resulted in ongoing discussions with Eriez representatives for equipment that would give Garden Street the highest levels of metal recovery.

From those discussions and on-site evaluations, Garden Street installed an Eriez PokerSort™, two P-Rex84 Scrap Drums with Underflow Processing System, two magnetic pulleys, two RevX-E® Eddy Current Separators, one ProSort II Airless Metal Recovery System, one FinesSort® Metal Recovery System and a Metal Loss Monitor.

“Once we got the shredder, we ultimately decided to purchase the right kind of equipment to make this a full-scale operation where we are now a regional player in this business,” says Weber. “This is a very competitive atmosphere and we realized we needed the most technologically advanced equipment in the market.”

Following the shredder, scrap material passes through the PokerSort, which extracts long, troublesome pokers like automotive springs, tie rods, steering and axle components and other uncooperative long shapes before the drum magnets.

Once that step is complete, the material is conveyed through two P-Rex Scrap Drums with Underflow Processing System, where Garden Street is “running at 99 percent ferrous recovery,” says Weber. Fluff passes under the P-Rex® drum rather than

over it as it does in traditional processes. This modification enhances fluff removal and metal recovery, generating increased profits for Garden Street.

Tim Shuttleworth, Eriez President and CEO, remembers that Garden Street was one of the initial recycling operations to install the P-Rex with Underflow and is now realizing the quantitative benefits. “The standard over-the-drum processing approach is not very efficient for cleaning fluff out of the frag or ferrous product since most of the cleaning action is in a very narrow zone and some items cleaned from the frag actually fall back into the feed source.”

“Conversely, when you go on the underflow of the drum, any fluff released from the ferrous product stays out of the ferrous product, enabling a 50 percent reduction in the amount of entrained fluff compared to over-the-drum processing.”

Because the P-Rex is a permanent magnet, the magnetic force extends to the edge of the drum. Weber says it’s one reason that Garden Street is able to recover more large sphere-shaped meatballs and knuckles, where before that recovery task was limited to hand-picking.

Eddys take care of nonferrous separation

Garden Street then installed two side-by-side RevX-E Eddy Current Separators to handle nonferrous metals. These particular units with 84” rotor widths are designed with an eccentrically-mounted magnetic rotor within the non-conductive larger diameter shell. This eccentric rotor design reduces long-term wear because of heated ferrous build-up. The Eddys “throw off a very clean aluminum product,” observes Weber.

Resulting from extensive research and development, the Eriez eccentric rotor design offers high performance in terms

of material displacement and reliability. The RevX-E rotor has been proven by independent third-party testing to throw aluminum “fines” nearly 20 percent farther than other eddy current separators. Garden Street now recovers valuable metals that would normally go to landfill as well as allowing its customers to purchase a high-grade metal product.

Garden Street installed yet another piece of equipment—the ProSort II Airless Metal Recovery System—to gain even higher levels of ferrous recovery. This unit uses high sensitivity metal sensors aligned with low energy electromagnetically driven paddles to separate valuable metals from waste material.

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The ProSort II uses a traditional conveyor belt and sensors to detect metals, then, instead of costly air reject systems, two-inch “electromagnetic motorized paddles” reject material. The paddles are positioned side-by-side in a bank as wide as the belt, so when the sensors detect metal on the belt, the control circuit energizes the appropriate paddle at the moment the metal passes below/under, diverting from the product stream. This system recovers the majority of nonferrous and stainless steel from the waste stream.

The motorized paddle is adjustable. By replacing expensive air compressor plants, valves and airlines with energy-efficient electromagnetic drives, the ProSort II requires less than 25% of the electricity needed to operate a comparably sized air-powered sorter.

Recovering metal 'fines' from waste

According to Weber, Garden Street wanted to ensure the recycler was recovering as much metal as possible before the end of the waste stream. The other piece of equipment that Garden Street installed was an Eriez FinesSort Metals Recovery System, which recovers metal less than 1" in size.

The FinesSort receives the discarded "fines" material that has passed through the initial screening process. The material flows through the machine's magnetic separators removing metals from the flow, dropping them onto a cross-belt conveyor and into a recycling container.

Ferrous is first separated using a powerful Rare Earth pulley that pulls the ferrous material out, and then passes over a magnetic drum to further separate the ferrous from any remaining residual

waste. The fraction is dropped onto a cross conveyor and into a collection bin. Also at this stage, light non-metal materials fall out of the stream onto the waste conveyor below.

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The second stage reclaims the nonferrous metals. Here, a high frequency Eddy Current Separator recovers fine nonferrous materials that the main Eddy Current Separators would otherwise have missed. The nonferrous material is propelled by the special ECS onto a cross conveyor and from there into collection bins.

The final piece of Eriez equipment is the new Metal Loss Monitor, which enables Garden Street to determine the quantity of

metals that are passing through its scrap yard unrecovered. The MLM continually scans the residue stream for metal that has escaped the process and is headed for landfill disposal.

Staying competitive in a regional market

Establishing a niche within the competitive scrap metal industry in and around Cincinnati now requires the combined efforts of the Weber family and its 70+ employees. What started out as a scrap metal trucking company by Earl Weber Sr. in 1958 has now grown into a technologically-driven operation with continuous upside.

"There have been a lot of changes in this business, with a lot of older scrap yards no longer around," says Earl Weber Jr. "Once we decided to invest in the upgrades, there was no question we need the best equipment possible to stay competitive and purchase the equipment from companies we trusted."

"That's one of the reasons why we chose Eriez for the separation equipment," he says. "It's family-owned and their service is first rate."



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Eriez is recognized as the world authority in separation technologies. The company's magnetic separation, metal detection, material handling, fluid recycling and advanced flotation technologies have application in the mining, processing, packaging, food, recycling, aggregate, plastics and metalworking industries. Eriez designs, manufactures and markets these products through 13 international subsidiaries located on six continents. For more information, visit www.eriez.com or contact Eriez World Headquarters, 2200 Asbury Road, Erie, PA 16506 USA at +1 814 835-6000 or eriez@eriez.com.

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