



AN ADVANCED DEGREE IN MATERIAL HANDLING

U.S. Conveyor Technologies is using advanced engineering to help recyclers and technology providers, like SGM, to optimize their material handling systems.

When SGM Magnetics Corp. Sarasota, Florida, was awarded the contract to build a Micro-Fines Plant (MFP) for Owego, New York-based Upstate Shredding – Weitsman Recycling, it needed a reliable partner to provide design and fabrication services. The company turned to an experienced, well-respected recycling industry supplier, U.S. Conveyor Technologies of Mackinaw, Illinois.

SGM was deploying some of the industry's most advanced technologies to reclaim nonferrous micro-fines contained within auto shredder residue (ASR) generated by

Upstate's shredding plants in Owego and in New Castle, Pennsylvania. To ensure maximum system efficiency for the client, SGM needed material to flow smoothly and evenly from one stage to the next.

Advanced Technology At Work

The MFP infeed material consists of ¾-inch-minus or ½-inch-minus fines from an ASR plant, typically, representing 40 percent and 30 percent in weight of the total ASR waste, respectively.

The Upstate installation was designed with a throughput of 18 tons per hour, and the plant runs 6,700 tons per month. The unique SGM plant design deploys a wide range of technologies, including:

Ferrous Separators	
DSRP 60 inch	SRP 40 inch
High-Frequency Eddy Current Separators	
VIS 60 inch	VIS 40 inch
Sensor-Based Separator	
EMSEF-R 96 inch	
Air Classifiers	
2 - ACL 86 inch	
Air Gravity Tables	
3 - PDS10	3 - PDS4

Additionally, the plant includes a rotary dryer and a vertical impact crusher.

Tying It All Together

Once SGM designed the plant layout, including key technology deployment points and overall material flow, the company worked with the engineering team at U.S. Conveyor to bring the system to life. “We did all the detail design for the plant, built the conveyors, batch feeders, platforms and all of the structural steel supporting the equipment,” comments Troy Graves, president of U.S. Conveyor. “Ensuring consistent and smooth material flows was a critical goal in the project.”

A unique attribute of the Owego plant is that it had to be constructed within a small footprint. The building housing that system is just 20,000 square feet. “The conveyors alone were some 1,500 feet in length,” says Graves.

To help make this work, U.S. Conveyor incorporated its unique Modular Hybrid Conveyor®. The modular design allows these conveyors to be added to or rerouted and generally delivers flexibility should there be a future need to modify system flow or add new processing steps.

The conveyors also can be bent in an arc fashion. This allows the incorporation of vertical rise but with a standard conveyor. The technology avoids special rollers and idlers as well as the expense and maintenance that goes along with them. The unique design eliminates material roll-back, which helps to maintain system production and even burden depth

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to ensure efficient separation with each processing stage.

Quick Turnaround

Engineering and fabricating a system of this magnitude is no easy job, but the SGM and U.S. Conveyor teams made quick work of the project.

In just 16 weeks, U.S. Conveyor fabricated the batch feeders, conveyors and structural steel to support all of the equipment. Once complete, the equipment was delivered to Owego, where installation took another two months, with SGM and



U.S. Conveyor teams working together to bring the system to life.

Once build up and testing were completed, the plant was commissioned in one week. It has been up and running since December 2016.

A Unique Partner

Through selecting U.S. Conveyor, SGM got a strong partner for the project. U.S. Conveyor Technologies was founded in 1988. Its staff is an experienced and growing team working together from a 40,000-square-foot engineering and production facility.

The team has more than 100 years of

combined recycling industry experience and has worked on literally hundreds of projects, from the most complicated and advanced micro-fines plants, such as the Upstate Shredding – Weitsman Recycling installation, to small retrofit projects.

U.S. Conveyor Technologies invests to provide its customers with a competitive advantage. That’s why it uses the latest in technology and design concepts to deliver cutting-edge material handling equipment. These include:

- **3D Laser Scanning** – With more processors upgrading existing metal re-

covery systems, 3D laser scanning is a powerful tool. It gives U.S. Conveyor the ability to precisely scan a system and design new equipment to install seamlessly with the existing equipment. Less guess work – less downtime – seamless installations.

- **Design Software** – U.S. Conveyor designs in 2D and 3D CAD, at the customer’s preference, using the latest technologies in CAD software to make certain equipment is designed to install easily and to operate more safely and with maximized ergonomics.
- **Research and Development** – U.S. Conveyor operates a dedicated research and development team that works together with its customers to test and refine conveyor designs. 3D printing also has become an important part of the prototyping phase to test fit and proper operation before production.

As a privately held, family-run company, U.S. Conveyor Technologies is not simply an equipment fabricator, it is a complete system design firm ready to work with any end user or technology provider to develop a custom system engineered around your specific needs. ••



**US CONVEYOR
TECHNOLOGIES MFG., INC.**

Mackinaw, IL

309-359-4088 • www.USConveyor.net

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