



## Grinder Keeps Farm's Waste-to-Energy Facility Profitable

**CUSTOMER:**

*BioTown Ag*

**PROBLEM:**

*Debris in feedstock for waste-to-energy operation clog chopper pumps*

**SOLUTION:**

*Monster Industrial 3-HYDRO-IX dual-shafted grinder*

Reynolds, IN - Handling difficult liquids, such as sludge or fluids laden with solids in waste-to-energy operations presents a challenge that can impact the entire system if left untreated. When flow is interrupted by debris or large solids blocking a pump or pipeline, the waste-to-energy conversion process can break down within seconds — and the time and cost to deal with a complete cleanout, shutdown and restart can be astronomical.

Thankfully, this situation can easily be avoided. Many facilities that process difficult liquid/solid combinations now rely upon powerful dual-shafted grinders to deal with debris and ensure continuous operations. BioTown Ag in Reynolds, Indiana was one such agricultural waste-to-energy operation that faced frequent shutdowns from undesirable solids and came to JWC for a solution.

BioTown Ag is a technology-driven, environmentally conscious farm focused on eliminating the impact from past agricultural practices by exploring new frontiers in food production.

To meet their sustainability goals, BioTown Ag incorporated an anaerobic food waste and manure digester to convert waste into energy, fertilizer and soil. Optimizing the efficiency of the digester requires more organic material than what the farm produces, so BioTown Ag accepts organic by-products from neighboring industries. This solution is a win for all parties — local companies have a greener disposal option for their food waste, and BioTown Ag is able to keep their digester running at peak efficiency.

The methane gas produced by the digester is used to power the farm's three generators, while the fertilizer and soil that the digester produces are used on-site or sold locally. Each year, BioTown Ag reduces CO2 emissions by 44,000 tons, landfill waste by 128,000 tons and wastewater by 36.5 million gallons. As stated earlier, incorporating this digester within their farming operation provides a host of benefits that ripple out into the community — local businesses have a sustainable disposal option for their organic waste, and the extra energy the farm doesn't use is sold back to the power grid. It's crucial that waste material flows uninhibited through the system because any downtime due to equipment failure can hurt the economics of this sustainability model.

# CASE STUDY MONSTER SOLUTIONS

Within the digester are chopper pumps that keep manure, organic waste and water flowing throughout the closed-loop process. Smaller solids can pass through the pumps without causing clogs, but if larger pieces of debris are left untreated, the whole system comes to a halt — which is exactly the problem workers at BioTown Ag were experiencing.

Along with the organic waste that is put in the digester, items like water bottles, wood and rock can end up in the feedstock mix during transport. Those items easily clog pipelines and pumps, and operators are required to manually unclog the chopper pumps to get the system running again. At BioTown Ag, these clogs within the chopper pumps were occurring every few days, which required a complete shutdown of the digester. The cleanout and rebuild tasks associated with getting the digester running again were both unpleasant and potentially hazardous.

After conducting research on available solutions, BioTown Ag purchased a 3-HYDRO-IX dual-shafted grinder from the Monster Industrial division of JWC. The grinder was installed into the pipeline that flows into the feedstock mixing tank. Since the installation, the BioTown Ag maintenance crew hasn't had to manually unclog the pumps, and the farm has purchased a second Monster grinder to keep up with increased capacity.

Dual-shafted grinders employ low-speed, high-torque grinding to breakdown troublesome solids. This approach has been found to be extremely effective in dealing with the wide variety of solids that can be found in waste streams, including stringy rags, tough stones and other inorganic materials.

Systems that utilize high-speed cutting blades, such as macerators or chopper pumps, cannot deliver the same cutting force as dual-shafted grinders. The high-speed cutting systems tend to become clogged with stringy material or get damaged by hard solids or waste streams with moderate grit.

Dual-shafted grinders were originally developed for wastewater treatment, including sludge pumping. Since then, these grinders have been installed in a variety of applications beyond wastewater, such as manure, food waste and biofuels processing.

Sludge handling and debris reduction is just the beginning of what a dual-shafted grinder is capable of. Those running a waste-to-energy business have many issues to contend with — worrying about pump and pipeline clogs shouldn't be one of them. Using an intelligently designed, capable Monster Industrial grinder from JWC Environmental will help business owners shred waste into profits, and keep their waste-to-energy operation running smoothly.



*JWC Environmental (JWC), a Sulzer Brand, is a world leader in solids reduction, removal systems and product destruction for municipal and industrial applications. JWC Monster Industrial shredders and grinders are uniquely designed to cut through the toughest solids and bring them down to size. Monster Industrial products are working every day, protecting equipment and destroying debris. They are found in applications like recycling, waste-to-energy, commercial facility sewage, food and beverage processing, agriculture, and oil and gas. Founded in 1973, the company has built and shipped more than 40,000 Monster grinders, shredders and screens to customers worldwide. More information on JWC Environmental is available at [www.jwce.com](http://www.jwce.com)*

