



for a greener tomorrow



When three-phase power is unavailable, D&E Equipment helps farmers grow their operations with an innovative, cost-effective solution using Mitsubishi Electric VFDs

Case Study

Solution

- FR-F820 Variable Frequency Drives

D&E Equipment Product Benefits

- Cost-effective, VFD-driven grain storage solution
- Long-term customer satisfaction focus
- Fast, local maintenance and repair services

Mitsubishi Electric Value-added Advantages

- Outstanding product reliability
- Non-proprietary, supplier-serviceable programming
- Partnership-based business model



“...Mitsubishi VFDs are turning our service guys into salespeople because they are going to farms and constantly seeing where customers can benefit enormously from them and they are very excited because the product can quickly eliminate a host of problems...and anytime you can fix something so effectively for someone else you’re going to feel good about it.”

– Mike Kees,

Vice President of Operations, D&E Equipment Co., Inc.

BACKGROUND

D&E Equipment of Wilmington, Ohio was founded in 1954 by Walter Ewing. Specialists in designing and installing customized farm infrastructure solutions such as grain storage bins, grain elevators, dryers, augers, grain handling systems and related equipment, D&E is a family-run company that has built a reputation for quality and service throughout the local agricultural community. With no two installations the same, D&E Equipment’s highly experienced workforce collaborates with each customer to fully understand and meet their unique needs.

CHALLENGE

While the farms of the past would often sell the entirety of each season’s grain once a year at harvest at the prevailing price, today’s more sophisticated agricultural operations prefer to make use of on-site infrastructure to store and maintain grain, selling their crop in several batches at different prices throughout the year to help maximize returns.

Along with farm consolidation, this trend has helped fuel the demand for larger and larger grain storage and handling infrastructure over the years. However, since many agricultural operations are located in remote rural areas, they can quickly reach an impasse severely hampering their ability to grow.

“Unfortunately, many of our customers can only get single-phase power out to their farms,” explained D&E Vice President of Operations Mike Kees. “Unless the farm happens to be adjacent to a shopping center or industrial park or in an otherwise more heavily commercialized area, the local power utility might not consider it cost effective to run three-phase power lines to them.”

With three-phase power vital to running larger fans and motors and other equipment related to increasing storage and handling capacity, farmers wanting to grow their operations have been forced to use a feasible, if far from desirable workaround: rotary phase converters.

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“Phase converters are costly and have big capacitor banks and a big amp draw—they can really run up a farmer’s electricity bill and erase a lot of their profits,” Kees explained.

SOLUTION

Fortunately, working with Mitsubishi Electric and their local distributor, D&E has been able to offer their customers a far more attractive solution: Mitsubishi Electric variable speed drives.

“Basically Mitsubishi VFDs allow us to ‘trick’ a single-phase system into running a three-phase motor on a single-phase electric supply without a phase converter, enabling greater horsepower,” explained Kees. “And since they are only used on the specific motor or other piece of equipment where they are needed, they are far more power-efficient and economical to run.”

The impact of a Mitsubishi Electric VFD on a farmer’s operation, Kees notes, can be huge—and instantaneous.

“A maximum of 15-hp single-phase power is limiting. We can install a VFD, and our customer becomes capable of using larger, faster equipment, get to gain more capacity by increasing the size of their operation; where before, there was a ceiling. With their 1-phase power supply, and the VFD, they’re not limited on the equipment size. A customer may move from 700 bushels per hour to 1200 or 1700 bushels an hour through their drying system by using a conveyor that requires a 30hp 3ph motor, though they still have 1ph electric supply. The VFD provides an immediate opportunity for them to cost-effectively grow their operation.” Kees said.



However, according to Kees, that can be only the beginning, with Mitsubishi Electric VFDs potentially providing a host of other valuable problem-solving benefits as well. Among them are the capability to allow a “soft start” gradual ramp-up of equipment power draw at start up, reducing the possibility of tripping the overload, reducing the possibility of damaging expensive equipment and increasing service life.

Another benefit of VFDs is their ability to make it easier to combine newly purchased equipment with existing older

equipment and make it work effectively for the customer, a common challenge on the farm according to Kees.



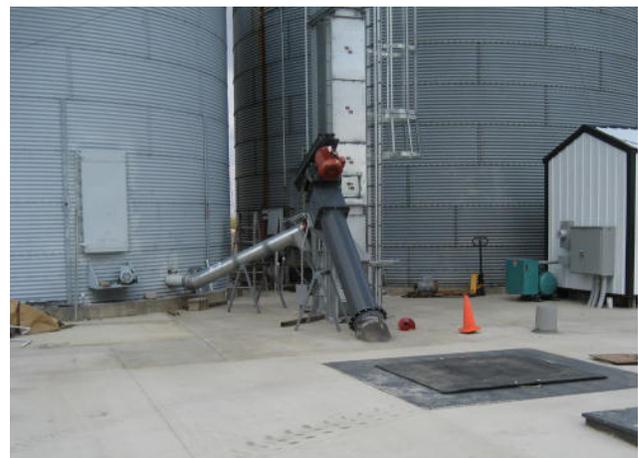
If one conveyor, for example, is rated at 5000 bushels an hour and another is rated at 7500 bushels an hour, grain plugging and equipment breakage can occur if the incompatibilities are not evened out.

In addition to all of these product benefits, as a local company dedicated to providing personalized service to the neighboring agricultural community, Kees also appreciates how working with Mitsubishi Electric has enabled D&E to create even further goodwill and maintain and enhance the company’s long-term quality reputation.

“We are service-driven and stand behind our products and Mitsubishi helps us in that regard. I don’t think I’ve ever seen one of their VFDs go bad and force us to go back to the customer site to replace it,” he said. “With the high costs of service and the high costs of downtime on the farm that makes both us and our customers very happy.”

Further, Kees notes that when VFD programming is needed, the customer-focused, partnership-driven attitude of Mitsubishi Electric and their distributor help D&E provide fast, effective service as well.

“Our prior supplier insisted on keeping their system proprietary; if there was a programming issue we had to call them and wait for them to come out. It could take several days and support costs were high,” he said. “Contrast that with the Mitsubishi attitude—they actually trained our guys on their system, no problem, so we can do it all ourselves quickly. Again, that makes both us and our customers very happy and is a huge value add. Mitsubishi has a whole different business model and attitude—a partnership rather than a forced dependency.”



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RESULTS

Working with Mitsubishi Electric VFDs has created a whole new stream of business for D&E, and also stimulated their interest in potentially helping customers apply additional Mitsubishi Electric automation solutions to grain handling applications such as those relating to PLC controls, networking and grain temperature monitoring. But perhaps even more important to Kees is the excitement he has seen the VFD product generate among his personnel.

“Today’s farmers are as sophisticated as anyone but the VFD solution is still something that is not well known or well utilized and that’s unfortunate,” he explained. “But on the other hand it’s turning our service guys into salespeople because they are going to farms and constantly seeing where customers can benefit enormously from Mitsubishi VFDs and they are very excited about the product because it can quickly eliminate a host of problems and create value, and anytime you can fix something so effectively for someone else you’re going to feel good about it. I feel certain that in time VFDs will be as common on the farm as motors and augers.”



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