

Energizing Efficiency

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How internal practices, workflow and finished products at Yaskawa's new facility all share in the yields of a greater, common focus.



A new facility has provided the ability to refine work cell layouts, as can be seen by this horseshoe configuration.

There can be a variety of reasons for a company to move its operations. In some cases the cost savings of a new geography are simply too great to ignore, while others look to upgrade their infrastructure. Yaskawa Electric America realized the later with their recent transition to a new building, but this company's story stands as more than just a case study on the benefits of a new facility. Looking more closely offers insight on how a company can be involved at every turn in contributing to big-picture energy efficiency gains.

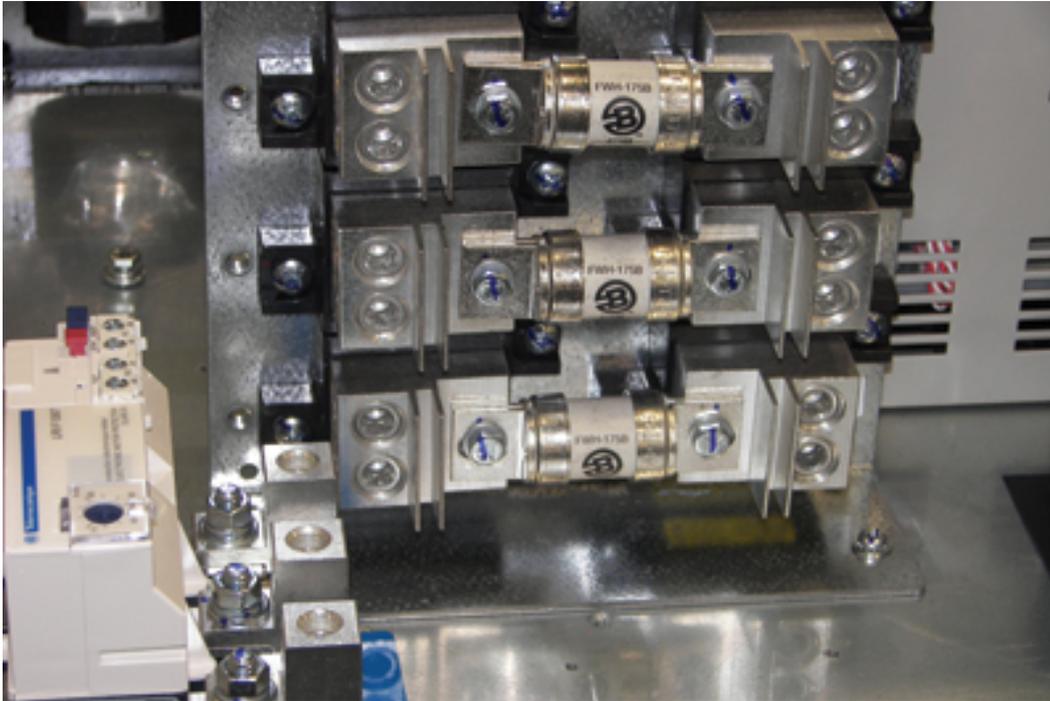
Originally founded in Japan in 1915, Yaskawa Electric Corporation got its beginnings by specializing in motor controls for mining equipment. By 1967 Yaskawa Electric America, Inc. had been created, and in acquiring the Drives Group of MagneTek in 2001 and the rights to Omron IDM Controls' HVAC and industrial channels in 2004, the company has grown to be recognized as the world's largest manufacturer of inverter and servo drives, servomotors and industrial robots. Their prime manufacturing facilities in the U.S. are located in Buffalo Grove, IL and Oak Creek, WI. The Oak Creek location is new, and replaces a facility in nearby New Berlin.

According to marketing communications manager Neil Koepke and director of operations Greg Davies, the company realized a number of key benefits in making

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the move. “Although it’s about the same size (110,000 square feet), this facility was an empty shell, so we could build it out the way we wanted with everything on one level,” offers Koepke. “Basically, the problem we had at the other building was that it wasn’t set up well for combining office space and manufacturing space,” adds Davies.



The marks on the screws represent one of the numerous in-process quality assurance checks made by Yaskawa workers on the production floor.

“We had work cells and fork truck routes snaking their way throughout the production floor,” Davies continues. “The former building just wasn’t very conducive to a naturally efficient workflow. We also only had two shipping doors, and they were tightly spaced right next to each other. While we made it work for quite a while, it just wasn’t the ideal fit, especially with higher volumes.

“Another big benefit, I think, was the message it sent to the workforce. It showed that even though we’ve had to weather some storms in dealing with current economic conditions, we’re still investing in the business and want to provide them with a quality working environment.

“So the employees were very positive about the move, and I think that’s what made it such a fluid transition. We started on a Wednesday night with the lines packing themselves up as they finished the day. By Tuesday morning of the following week we had pretty much everything back in full-swing production.”

The move also brought the assembly segment of Yaskawa’s business closer to their drive manufacturing facility in Buffalo Grove. “Additionally, it was key for us to stay in the greater Milwaukee area,” adds Koepke, “which is an important place to be when working in the motion control marketplace, and especially with drives.”

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Inventory is organized, housed and replenished right on the lines by vendors and distributors.

Get Your Motor Runnin'... Better

“So while we understood that a new facility would improve our workflow set-up, it also allowed for re-evaluating a number of other things as well,” offers Davies. This included addressing some energy usage deficiencies. The new facility offers more cost-cutting fluorescent lighting and a reflective, acid-washed floor that better reflects the light being emitted to create a brighter working environment. Sensors that shut lights off when no one is present have been added, and increased recycling efforts for cardboard, copper wire and wood pallets are now in place.

There’s an appropriate irony in establishing energy efficiency initiatives for this facility when one considers what is done here. Workers take the drives made in Buffalo Grove and combine them with custom-designed control boxes for HVAC, semiconductor, irrigation, industrial and other industry applications. Yaskawa works with a number of major OEMs in designing these boxes, which are combined with the company’s motor control devices. The main selling point is how much more efficient the company’s drives are in controlling motor speeds. This translates to greater energy efficiency, better control and a longer overall product life.

The facility runs four lines in handling wall-mounted, floor-mounted, high horsepower (HPP) and motion control products. With a focus on quality and improving lead times for their build-to-order, value-added offerings, the operation incorporates a dual focus that has produced key competitive advantages and spawned the need for a number of lean production approaches.

“We’ve implemented a number of build-to-order methodologies in handling demand fluctuations,” states Davies. “This keeps inventory levels lower and easier to accommodate, which is important with the amount of customization we do to meet

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a number of very specific applications in a wide range of industries with the quick turns that our customers expect.”

In managing the type of product mix that the Oak Creek facility does, controlling the inventory levels of supporting components, such as wire harnesses and circuit boards, is an important production aspect. This has led to a vendor managed point of use storage program where suppliers or distributors stock their products right on the line. Demand requirement reports have also been established that, along with minimum and maximum allowances, provide forecasts on the amount of inventory that is needed for a set amount of time.



“This has eliminated the need for warehousing and allowed us to do more with the space we have. The only products or components on the floor are either needed to finish an order, or are ready to be shipped,” cites Davies.

The added manufacturing space will allow for a clean room production area to be added to the Oak Creek facility. It’s also led to Yaskawa working with more vendors during the design process in realizing future efficiencies once a production cycle begins. These design for manufacturing and assembly (DFMA) principles are becoming much more prominent in lean circles.

A Journey, Not A Destination

“Our implementation of lean practices began in 2003,” recalls Davies. “We brought in a fairly complex line from a different Yaskawa facility, and at about that same time it experienced a 500 percent increase in demand.

“The Wisconsin Manufacturing Extension Partnership gave us some great guidance in helping to understand ways to better meet this surge. They helped us identify basic flaws and eliminate wasteful procedures that were creating bottlenecks and

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hindering true efficiency. Perhaps the best part was that it gave a fresh production perspective to a group that was primarily from an engineering background.”

Implementing these approaches throughout the facility has been key in helping the facility turn out record numbers with shorter lead times. For example, the wall-mounted line has increased its output by almost 300 percent, while simultaneously reducing lead times by 50 percent without allocating any additional resources.



These racks are used to bring drives in from Yaskawa's Buffalo Grove, IL facility. In an effort to reduce waste and inventory space, they will be sent back to that location for re-loading when trucks bring in the next shipment of drives.

Davies also realizes that the cliché about lean being a journey, not a destination, is all too true. “We know we need to continue improving, and one of the areas we’re focused on in that respect is trying to implement more standard approaches,” he cites. “In other words, there’s nothing technically wrong with the red wire being on top in one unit and the blue wire being there for the next. However, we recognize that greater uniformity in our processes can simplify things for the customer.”

Labor negotiations with the Oak Creek facility’s IUE-CWA union also produced some interesting developments that will aid in the continuous improvement strategy. “Basically, we established four teams,” explains Davies. “They cover safety, documentation, training and workplace organization, or 5S. Workers are expected to comprise all these teams in helping to drive the efficiency of the plant. The union has also provided a lean consultant to assist in taking additional steps on our lean journey.”

So, just as efficiency has been a key selling point for Yaskawa’s drives, it’s also efficiency that propels the company’s production schemes forward, and keeps them competitive on all possible fronts. It’s a cycle that all involved appear committed to

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continuing.

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