

PRIMING THE pump



Viking Pump teamed up with Vdir Machine to streamline storage of its slow-moving parts

By Jim McMahon

At Viking Pump's central manufacturing plant in Cedar Falls, Iowa, the company stocks more than 30,000 unique parts to supply its assembly workstations, as well as replacement parts for its installed base worldwide. These parts are inventoried on rows of stationary shelving, occupying approximately 30,000 square feet of storeroom in multiple locations throughout the facility.

Viking wanted to consolidate its stockrooms, make them more efficient to pick parts for assembly and improve inventory accuracy. The first area of approach was its slow-moving parts inventory. The company discovered that although slow-moving parts made up only two percent of its inventory (about 500 part numbers), they were being handled inefficiently.

Manufacturing is a dynamic process of companies evolving and expanding product lines, and automating assembly processes

within their facilities to increase throughput volumes and improve quality. For many industrial manufacturers, it is no small organizational challenge to keep assembly production requirements supplied with kitting parts, particularly when dealing with continually escalating volumes of unique part numbers.

Most manufacturers maintain parts stockrooms that are manual operations with aisles of stationary shelving. As companies grow,

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and the number of unique parts expands into the thousands and tens-of-thousands, so does the need for more aisles and shelving to stock these parts, frequently pushing plant stockroom footprints into the tens-of-thousands of square feet.

Such stationary-shelf stockrooms become logistical challenges, requiring considerable footwork for pickers. This can be tolerable so long as parts are in their designated locations. But as part volumes grow, they increasingly are not where they should be, escalating picking times considerably, delaying delivery of parts to assembly, and potentially compromising production throughput.

Add to this the growing square footage of plant floor space needing to be utilized for inventory, and manufacturers will eventually reach a critical threshold where automated parts storage becomes more of a necessity than an option.

Viking Pump, Inc, a subsidiary of IDEX Corporation, has been a pump industry leader and innovator since 1911. As it builds on its experience to deliver innovative pumping solutions—including custom designs—to thousands of customers who use millions of Viking pumps in some of the world's toughest applications, it was running into this kind of inventory control problem.

"We have been looking at how to process orders better between our stockrooms and assembly stations," said Viking's operations manager, Marty Meyer. "We started by preparing detailed material flow diagrams to better understand how to reorganize our stockrooms to facilitate improved flow."

"Managing our slow-moving parts was our first priority," added Meyer.

Many of the slow movers did not even have specified storage locations in the static racking. Frequently, they would be put into disparate shelving locations, sharing space with other parts. Sometimes as many as 25 slow movers would be in the same location, Meyers recounted.

"We really did not have a good way of organizing these parts, and our pickers would be wasting time trying to find the right parts to fill the kitting orders."

Automation to the rescue

After considerable research, Viking determined the best solution for its slow-moving



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small parts storage would be automated vertical pan carousels. Manufacturers have been benefitting from the use of vertical carousels for decades to reduce waste and increase their productivity. In September 2015, Viking selected two vertical pan carousels, manufactured by Vidir Machine, a manufacturer of automated storage and display systems based in Manitoba.

Vertical pan carousels operate under the goods-to-person principle, which means the operators no longer concern themselves with search-and-retrieval functions, but allow the vertical carousel to retrieve items regardless of their location within the machine. This eliminates many of the steps required when using stationary shelving for stocking and retrieving parts.

Small footprint, dense storage

Each of Viking's vertical pan carousels is an automated small-parts storage system that provides high-density storage volume, while occupying a very small 72 square-foot footprint (6 feet deep by 12 feet long), 16 feet tall. Parts are organized in storage bins and shelving configurations that are easily and automatically located by the operator.

The increased density is accomplished with a series of interchangeable dividers and removable intermediary shelves that allow

easy reconfiguration of the carousel interior to accommodate a diverse range of Viking's parts. Each carousel has a capacity to hold 13,000 pounds.

Smaller footprint, faster retrieval

"We were able to take all 500 of our slow-moving part numbers and put them in the carousels, instead of leaving them spread out across multiple storage aisles in our stockrooms," Meyer said. "Each individual part now has a unique location assigned."

The carousel machines interface with the company's inventory management system. Orders are generated and sent to the operator out on the floor. A barcode, part number or even a part description are entered into the machine. The carousel rotates the shelves internally, and presents the shelf holding the requested part. The operator is then directed to the exact location on the shelf where the part is located. The carousel ensures that the operator is working at an ergonomically acceptable height to reduce unnecessary bending or lifting.

"Many manufacturers have started to recognize the benefits available by condensing their parts inventory into automated carousel storage devices," said David Mills, national accounts manager for Vidir. "It makes for a very organized, simple and secure system to manage inventory."

"Vertical pan carousels are typically a little smaller in footprint compared to vertical lift modules (VLM)," Mills added. "They do not need quite the same amount of room to operate, comparatively, for the amount of storage that they provide. Pan carousels also tend to be more cost effective and provide a more reliable solution that experiences less downtime than their counterparts."

Both carousels combined take up a total of 144 square feet, replacing the 1,440 square feet of static shelving. This space, now opened up, is being used to make the storage and picking of faster moving parts more accessible and efficient.

"Our workers are no longer scouring our storage areas for these parts," Meyer noted. "And we are seeing improvements in inventory accuracy. The pan carousels are driving fewer mispicks. The addition of the carousels has also allowed us to reduce our labour force by one worker."

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