

Organizing Inventory to Keep Product Flowing

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Cameron operates three business segments, Drilling & Production Systems, Valves & Measurement and Process & Compression Systems. These three segments together make Cameron the leading provider of flow equipment products, systems and services to oil, gas and process industries.

One of the Cameron facilities in Oklahoma City, OK represents the Valves & Measurement group. Serving companies worldwide, Cameron - OKC manufactures approximately 800,000 valves per year. These valves are designed to control and direct the flow of oil and gas through many different channels. Cameron has high standards for its manufactured products; therefore, the equipment used in these industry environments has demanding standards as well.

Due to the large volume of valves being manufactured on the production floor, the amount of tools, gauges and components used in the process can be overwhelming. "Tools were being stored in cabinets and drawers, but it wasn't very organized. It slows production down when you can't find the right tool," says Bobby Maxwell, Sr. Tool & Die Maker. With demand always on the rise, improving inventory control would result in increased productivity, making it a top priority for Cameron.

Automation Consolidates Multiple Storage Locations

Hundreds of cabinets and drawers were spread throughout the facility, storing both CNC tooling and gauges. Operators would utilize tooling or gauges without records resulting in lost equipment and excess inventory. The storage areas were not safe or secure, and the inventory was extremely unorganized.

Two Shuttle XP Vertical Lift Modules (VLM), one 12' tall and one 19' tall, integrated

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with inventory management software were installed to consolidate these storage locations. All inventories from the cabinets were moved into these two machines to create a more central and efficient work station. One Shuttle VLM is used for CNC tooling and the other manages gauge inventory.



Productivity is Flowing

Before automation, operators would walk and search through drawer cabinets throughout the facility for the required tools and gauges necessary for manufacturing. Without a database to track inventory, missing items were common, requiring additional time to search for the lost inventory or the purchase of new inventory. With the new Shuttle VLMs, the operators now walk to one central location and with the push of a button the extractor brings the appropriate tray with the necessary tools directly to the operator at an ergonomic workstation.

On average, an operator would spend 34 minutes picking tooling and gauges per day. In the VLM system, it only takes 5 minutes. With limited travel and no searching involved, Cameron has been able to reduce the time spent pulling tools and gauges and increase productivity by approximately 86 percent in both zones. In addition, a worker spent an average of 48 minutes per week searching for the lost items. The new VLMs have allowed Cameron to maintain better inventory control which has saved 42 hours per year of wasted search time.

Improving Inventory Tracking and Access

Previously, access to tools and gauges was available to anyone, allowing for inventory to be lost or damaged. After installing the Shuttle VLMs, the inventory

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management software tracks where tools and gauges are located within the unit. “The VLM in the gauge lab is in a controlled office and users need a password to access the VLM,” says Arthur Wathan, Quality Inspector. Once an operator has access, they can store and retrieve inventory and the software will record each transaction. This added security allows for inventory to be accessible only to appropriate personnel.

Organization Keeps Inventory and Staff Safe

Previously, tooling was not stored in a controlled environment. “Safety was at risk,” says Maxwell. “Tooling was lying around. This posed a safety hazard to our operators and a risk of damage to the inventory.” The Shuttle VLMs provided a solution that would not only protect warehouse personnel but also the inventory being stored. A safety light curtain is located in the access opening of the VLM. If the light barrier is broken while the machine is in motion, it will stop the machine to protect employees from injury. Products are safely stored in the machine in a clean and organized environment. Keeping products in a controlled environment helps maintain the integrity of the stored goods.

Spreading Efficiencies

With the improvements made in the CNC tooling zone and the gauge lab, Cameron decided to implement automation in the component parts zone. Previously stored on small racks, small component parts, such as o-rings and gaskets, were taking up too much space. “There was no inventory control, so the inventory in this area was always off,” says Jose Alca, Manufacturing Engineer II.

In the component parts zone, orders would come from SAP. The warehouse worker would walk from rack to rack, searching for the parts required to fill an order. Once the orders were picked, the warehouse worker would take the parts down to a kitting area for sub assembly, to later be sent to manufacturing assembly queues. “The racks were taking up too much space. We were wasting time walking around searching for parts,” says Alca.

Space Savings

After the successful implementation of the Shuttle VLMs for storing tooling and the gauges, the component parts zone consolidated its inventory into one 12’ Shuttle VLM as well. The implementation of the shuttle VLM was able to reduce allocated floor space from 294 sq ft to 91 sq ft, a 69 percent reduction in floor space. “Space is always a constraint in our facility. Freeing up floor space allows other processes around the VLM to become more efficient,” says Alca.

Additionally, the component parts were previously stored on racks, and parts went missing all too often. On a yearly basis, the parts zone would misplace \$83,000 in parts inventory. Now, the Shuttle VLM requires inventory cycle counting, leading to increased accuracy. Misplaced inventory has been reduced by 70 percent, resulting in a \$58,000 savings annually.

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New Ways to Keep Inventory Moving

The implementation of the Shuttle VLM in the components parts zone allowed the process to improve. Integrated with inventory management software and a Logicontrol machine control system, the operator can manipulate the location of the parts, and can access any tray stored in the VLM. Delivered to an ergonomic height, the tray is brought down to the access opening via an extractor that runs up and down the middle of the VLM. TiC (transaction information center) lights direct the operator to the appropriate part to be picked. Once the technician has picked the part and confirms the pick with the confirmation bar, the VLM will first put away the previous tray and deliver the next tray for the following pick.

The component parts zone has recently integrated SAP with the inventory management software to further improve picking processes. The main warehouse worker creates a transaction order, where a pick lists is generated. The pick list has the parts numbers, quantities and the locations of the components needed for the order. The warehouse worker assigned to the VLM gets the same information via SAP to the inventory management software. Once the parts have been picked, they are brought to kitting for sub assembly. After sub assembly is complete, orders are placed on carts and are staged in a designated queue area located in front of each assembly lane. The appropriate orders will be pulled when they are needed for production.

Improvement Is on the Rise

Due to the positive impact the three shuttle VLMs bring to the operation, Cameron is proposing an additional Shuttle VLM to replace more racks containing soft components. This will improve the cycle time of picking a job and will reduce the floor space needed to store these components.

The central storage location for tooling and gauges has allowed for parts to get to manufacturing faster. Improving processes in these areas is showing signs of success all the way to the manufacturing floor.

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