Case Study

Merit Medical
Salt Lake City, Utah

Kitting System Facilitates Expansion for Medical Device Manufacturer

Merit Medical Systems, Inc. is a leading manufacturer of medical devices used in diagnostic and interventional cardiology and in radiology procedures. Successful products and growing sales presented the company with challenges at its manufacturing facility in Utah. Merit worked together with Dematic to develop an automated kitting solution that meets their specialized needs.

The Challenges

As a high-tech manufacturer, Merit was already very familiar with the advantages of automation. Its production facility in Utah uses highly automated injection molding machines to manufacture medical device components.

In fact, it was the increasing efficiency of the automated manufacturing that was creating challenges further down the line in the assembly process.

Assembly was inefficient. Significant time was required to gather components, resulting in inventory control issues.

Merit realized that the process required improvement. They would need help to achieve increased production rates.

Workers remove plastic injection molded parts from totes at kitting workstation.

System software ensures orders are executed properly and provides feedback for overall system operation.

Overhead Conveyor: Gray totes with inventory flow from manufacturing to the assembly area via overhead accumulation conveyor.

Multishuttle Work-in-Process Buffer: Inventory totes are stored in this Multishuttle sub-system until needed at assembly workstations.

Our Solution

To accommodate the increased production and future growth, Merit decided to expand its facility by adding a new final assembly area next to its existing production building.

Merit implemented a kitting solution supported by a Dematic Multishuttle® sub-system. The Multishuttle maximizes the use of space and provides controlled access to inventory. Dematic worked with Merit to optimize buffer and workstation processes.

The solution begins as manufactured product is transported in plastic inventory totes from the production area and into the assembly area on a one-way overhead conveyor.

The totes are inducted into the Multishuttle and stored, seven aisles and double-deep. The Multishuttle serves as a work-in-process buffer and is controlled by Dematic software. The distributed control architecture ensures a steady flow.

When inventory is required for assembly, the Multishuttle pulls totes from storage and places them on conveyor loop. The conveyor transports the totes to a right-angle transfer and then to the workstation.

The workstations are where workers perform goods-to-person kitting. Workers interact with the Dematic software user interface to request totes of product, acknowledge inventory taken from totes, and send the totes back on the conveyor loop.

Multishuttle In/Out Conveyor Loop: Connects the Multishuttle to the workstations. Inventory totes are brought to and from workstations.

"Merit chose the Dematic Multishuttle to maximize the use of space and provide controlled access to inventory."

Workstations, Goods-to-Person Kitting: Workers assemble kits with inventory from the Multishuttle.

"Our Solution" continued

The kits are then taken on carts to an area in the facility where other workers assemble the kits into final products. Workers put totes with remaining components back to the conveyor loop to be returned to the Multishuttle.

The Dematic software is a Warehouse Execution System (WES) that interacts with Merit's Warehouse Management System (WMS). The WMS sends the kit orders to the WES, the WES executes and acknowledges completion back to the WMS.

The Results

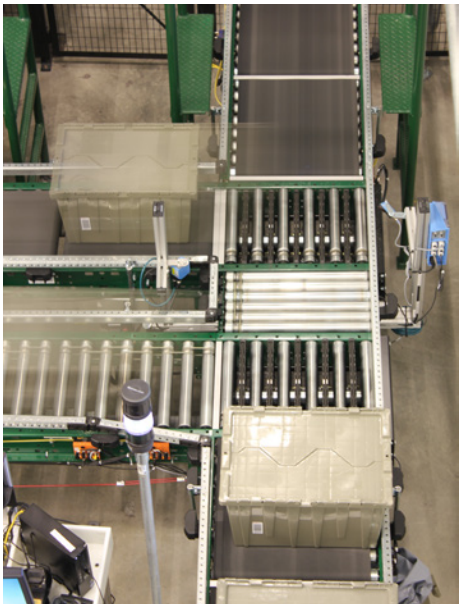
With the Dematic automated goods-to-person kitting solution, Merit has significantly improved its processes and productivity. Throughput capacity is up, while processing time is down:

- Decreased time required for kitting assembly — from hours to minutes
- Reduced labor required for picking process by 50%
- Improved inventory control and kitting accuracy
- Improved use of facility space with small footprint and high storage density
- Enhanced flexibility with ability to adjust processes and add capacity for future growth

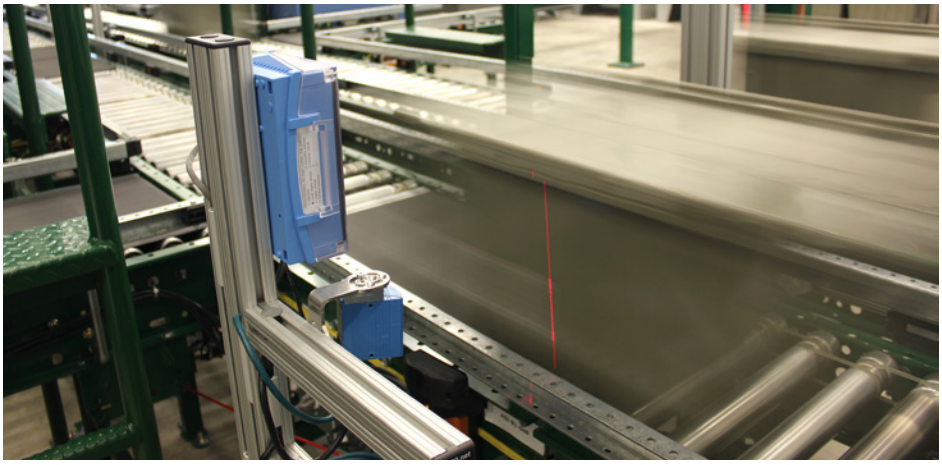
Key Facts

→ Injection Molding Operation	24 hours/day
→ Pieces Produced	41,000/hour
→ Totes Produced	up to 375/hour
→ Finished SKUs Assembled	60/day

Workstation: Workers interact with Dematic software user interface to confirm assembly process.



Right Angle Transfer: Diverts totes from the conveyor loop to individual workstations.



Scanner: Reads barcodes on totes with components and sends information to the Dematic WES.

Scale: Weighs totes on-the-fly and sends information to the WMS.

Storage: Conveyor transports totes back to Multishuttle.

Future Growth: Multishuttle racking set up for planned future expansion. The modular design and scalability of the Dematic system allows capacity to be easily added.

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