

Benchmark Briefing

ASRS Transforms Inventory Control





From prototype to patient

Intech's medical device manufacturing has a far-reaching impact

Intech, a global orthopedic contract-manufacturer, excels in intricate medical device production. As a renowned medical device job shop, the Intech facility in Athens, Alabama crafts essential orthopedic instruments, from hip and knee robotics to spinal implants. They bridge medicine and engineering, collaborating with leading OEMs and using physician feedback to innovate. Intech Athens prototypes, refines, and produces these instruments, transforming ideas into life-changing devices.

Amidst rapid growth a new challenge became increasingly evident: the intricacies of inventory management. As the business expanded and the facility dove further into sophisticated manufacturing, inventory complexities multiplied. Recognizing the need for better inventory control, Intech Athens installed two Vertical Lift Module Kardex Shuttles working in harmony with ZOLLER Tool Management System (TMS) software, to provide better inventory control, instant space savings, and increased manufacturing productivity.

Case at a glance

Site:
Intech, Athens, AL, USA

Application:
Automated storage to manage tooling required for medical device manufacturing

Equipment:
2 Vertical Lift Module Kardex Shuttles with integrated ZOLLER TMS software

Better
inventory
control

Instantly
recovered
10,000 sq. ft.

Improved
manufacturing
productivity



Rapid growth grievances

Intech Athens, with its 100,000 square foot facility and 220 employees, has achieved remarkable 150% growth over the past decade thanks to their commitment to innovation and technology. As they expanded into more complex manufacturing, they faced some growing pains with the intricacies of their inventory management. Transitioning to CNC machining increased the variety and volume of tools and supplies, with each CNC machine having a unique ecosystem, and their traditional inventory management relied on manual organization and individual discipline, leading to misplaced tools and maintenance issues.

"It wasn't just about having the necessary tools – it was about knowing their exact location, quality, and readiness for use." "We were like any other job shop, we had the necessary items, but often didn't know their location or condition. We knew we needed to do better," said Joseph Forsyth, the Director of Advanced Manufacturing at Intech.

To enhance control, Intech Athens implemented smart vending cabinets for cutting tools, but this addressed only a portion of their inventory. They recognized the need for precise tracking of tool location, quality, and readiness, aiming to overcome this ongoing inventory control challenge.

Precision control for precision tools

In pursuit of better inventory control, Intech Athens implemented ZOLLER TMS, a solution that had proven successful at the Intech Toulon facility in France. However, they took it a step further by integrating ZOLLER TMS with a high-density automated storage system from Kardex Remstar.

Intech Athens replaced their traditional racking systems and most of their cabinets with two state-of-the-art Vertical Lift Modules (VLMs) Kardex Shuttles. This transformation marked a significant departure from their previous inventory management methods and held the promise of revolutionizing their operations.

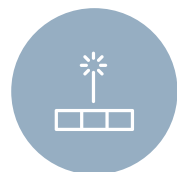
Working in harmony with the ZOLLER TMS software, these VLMs not only provided superior inventory control but also delivered tangible benefits in terms of space savings and enhanced manufacturing productivity. Joseph Forsyth, the Director of Advanced Manufacturing at Intech, highlighted the extent of their inventory management overhaul, saying, "From cutting tools to collars, vise jaws to sandpaper, and even deadblow hammers, we store them in the Kardex Shuttles. Through the ZOLLER TMS software, we've cataloged over 10,000 different part numbers. We now have unwavering clarity on our inventory – knowing precisely what we have and, more crucially, its exact location."



2 Kardex Shuttles



Kardex JMIF integrated with ZOLLER TMS



Pick-to-light Display

Inventory control increases speed to market

When it comes to medical device manufacturing (especially prototyping), 'speed to market' is more than a catchphrase – it can be the difference between a product making it to patients in time and not.

"It's not just about having the necessary items on hand. The real challenge is the speed at which we can access accurate data about the inventory. It's about answering questions like, 'Do we have the required tool for this specific prototype?' or 'How many of this particular item are on hand?' and crucially, 'Where exactly is it located?'" says Forsyth.

The integration of the Kardex Shuttles with the ZOLLER TMS software has infused trust and accuracy into the inventory system in Intech Athens. Whereas previously, information was scattered across spreadsheets, on clipboards, or purely on the 'honor system', now the majority of the physical items in the shop, encompassing roughly \$1.4 million worth of inventory, are systematically physically stored within the two Kardex Shuttles and cataloged in the ZOLLER TMS software.

Making room for innovation

As Intech Athens expanded its operations, the challenge of accommodating a growing inventory became a pressing concern. "The rate at which inventory was growing meant that space had become a premium. We were in a situation where new CNC machines were on hold because we literally had no room for them," reflected Forsyth.

The introduction of two Kardex Shuttles proved to be a game-changer – instantly reclaiming an astonishing 10,000 square feet. Now, 80% of Intech's inventory is managed in only 5% of their overall space.

Forsyth recalled, "The visual transformation was incredible. Racks and cabinets that once cluttered our space, enough to fill an entire 18-wheeler truck, now stood outside in the gravel parking lot. With this newly freed space, we were able to accommodate two more CNC machines, enhancing our production capabilities even before our planned facility expansion was finalized."

Boosting productivity with renewed focus

With the integration of the new inventory management system, production jobs are pre-staged (the process by which parts are gathered prior to assembly) days in advance increasing overall manufacturing productivity. "Previously, the 3 person pre-stage team was barely able to pre-stage production jobs for 60 machinists, now they handle pre-staging for 70 machinists easily," said Forsyth.

Now, when the CNC machinist is ready to start production, the items they need are there waiting in the work cell. No longer do they have to disrupt their manufacturing process to search for the necessary items. "Machining these parts is complicated and challenging – it takes constant focus," says Forsyth, "any distraction not only compromises focus but also translates to lost time and increased costs."

Inspiring innovation and discovery

In addition to streamlining CNC manufacturing, the new inventory system has unexpectedly turned into a valuable discovery tool. Particularly in the finishing and prototyping areas where a machinist's role verges on artistry and the toolset at their disposal can influence their approach and outcomes. Before the integration of the Kardex Shuttles, tools and supplies were often stowed away in cabinets, remaining unseen and underutilized. Forsyth recalls instances where staff would painstakingly work on a project using outdated methods, unaware that a tool within their inventory could accomplish the task in a fraction of the time.

Now, the organized trays not only store but can also showcase the tools and supplies available. Employees can physically access trays and 'window shop', encouraging them to explore, discover, and continuously educate themselves. Forsyth emphasized, "Our employees can freely navigate the trays, constantly updating themselves. It's not uncommon for someone retrieving a tool to get captivated by another, thinking, 'Wow, I didn't even know we had these!' It's contributed to keeping that curiosity and knowledge alive within our employees."



Manual search to automated precision

Intech replaced its entirely manual pre-staging process with two Kardex Shuttles integrated with ZOLLER TMS software, managing 80% of their total inventory in only 5% of their total floorspace and vastly improving inventory control.

When a product is contracted and enters the production phase, the first task lands with the pre-stage group. This group strategically arranges the production jobs according to priority. They are aided by the ZOLLER TMS software, which provides a digital roadmap for each part detailing all the necessary tools and items required for its production.

Previously, a pre-stage operator would manually walk through the shop, opening various cabinets and sifting through boxes to locate the tools required for a specific production run. This process was tedious and prone to errors.

With the new Kardex Shuttles integrated with ZOLLER TMS software, this process has been transformed. Now, the pre-stage operator enters the job number into the ZOLLER TMS software, which is seamlessly integrated with the Kardex Shuttles. The system then directs the Kardex Shuttles to retrieve every item necessary for the part's production.

As a tray is presented to the operator, integrated pick to light technology guides the operator to the specific item to be picked – identifying the part location and quantity to be picked. The operator selects the item, confirms its retrieval and places it on a cart. This process is repeated until all items required for the job are picked, ranging from as few as two tools to as many as 70, depending on the complexity of the part. The cart with all of the required items is delivered to the work cell so the machinist can begin the job when ready.

Within the ZOLLER TMS software items can be retrieved in two ways – they can be checked out or issued out. When an item is checked out it's a wear item meaning it is out of the system forever. When an item is issued out, the item is assigned to a job number and work cell. Issued out items will be returned to the inventory management system after the job so they can be used for another job in the future. This feature allows Intech Athens to track the lifetime usage and location of issued items, such as cutting tools.





Far-reaching future impacts

What was once a cumbersome and often unreliable process is now seamless and efficient. The Kardex Shuttles in combination with the ZOLLER TMS software translates to improved inventory control, significant space savings and increased manufacturing productivity.

Looking toward the future, Intech Athens is expecting delivery of a third Kardex Shuttle to be used in sub assembly. Some assemblies require nearly 500 rack locations before all parts from production are available for sub-assembly. "We plan to start storing our completed jobs in a 25 foot Kardex Shuttle using the ZOLLER TMS software, as a place to hold them while they wait for the other parts required to complete sub assembly," says Forsyth. "It's going to save us more square footage than anything we've ever done."

In an industry where every second counts, Intech's investment in integrating Kardex Shuttles with ZOLLER TMS software is more than a technical upgrade. It's a declaration of their commitment to precision, efficiency, and above all, delivering speed to market.