

# Tompkins Warehouse Control System (TCS) Connects SAP to Automation

## The Challenge

How can a successful, growing medical supply company double the size of its distribution center (DC) and increase efficiency without disrupting operations and customer service? This was the question posed to Tompkins Associates by a major medical products company that delivers products and tools to medical facilities and personnel across the United States.

Recently, the company had experienced phenomenal growth that was only expected to continue over the next five to ten years. Their channels of distribution varied greatly, from resupplying medical facility storerooms to building and delivering medical devices directly to operating rooms anywhere in the United States within 24 hours.

Their existing processes within the DC were entirely manual, which represented a challenge for economically supporting the projected growth in volume. In order to increase efficiency and accommodate anticipated growth, they turned to Tompkins Associates to help design a new automated process for product processing and distribution.

## The Solution

The new solution consists of two buildings with more than 225,000 total square feet of highly automated material handling systems controlled by SAP's warehouse module (SAP-WM) and Tompkins Warehouse Control System (TCS). The buildings are linked by a "connector" that accommodates conveyor running between the two buildings, and the system operates as one integrated DC.

The new DC went live in two phases, with Tompkins Associates serving as the turnkey system integrator.

## SAP Implementation and TCS Solution Features

The company ran SAP R/3 ECC 5.0 throughout the duration of the project. Prior to the introduction of automated material handling equipment (MHE), all processing was controlled by SAP-WM using handheld RF scanners and dedicated SAP terminals.

## At A Glance

**Client Company:** A market leader in supplying specialized medical devices to medical facilities and personnel

**Challenge:** Double the size of the DC and increase efficiency without disrupting current operations

**Solution:** Designed two buildings with highly automated material handling systems controlled by SAP-WM and TCS

Tompkins Associates' mission was to devise an integration and move strategy that allowed for testing, certification, and validation at medical device industry standards with minimal disruption to ongoing operations.

The approach was to use the existing order-processing datasets as much as possible, placing the customization burden on the TCS to mimic the company's familiar SAP workflow. Tompkins and the client tested various communication options through Netweaver and other methods. The result was a communication method using HTTP to pass data between SAP and WMS.

In turn, the medical supply company has retained their familiar SAP workstations and mobile terminals for manual processes that operate outside the material handling system. The MHE and RFID messaging within the automated system map into the SAP data flows and has replaced the functionality formerly performed by handheld scanners and SAP terminals.



TCS handles all conveyor control, material routing, and data integration to subsystems such as the carousels, pick-to-light, and AS/RS. TCS also hosts dual-use terminals that allow users to interact with TCS reporting screens and SAP data-entry screens when required during operations.

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**New Features: Loaner Surgical Kit Processing**

- RFID kit-receiving sorter for automated identification of high-priority inbound surgical kits prior to autoclave processing
- Five autoclaves for surgical kit sterilization
- High-speed loaner processing sorter with expansion capacity serving flexible workstations designed for multi-purpose use
- Multiple point merge for priority processing of inbound and outbound surgical kits with implant and surgical tool replenishment
- Multiple air-cargo shipping and receiving doors
- High-speed outbound shipping sorter

**New Features: Equity and Consignment Fulfillment**

- Three-level pick module with multiple zones for fulfillment of large, fast-moving SKUs
- Five double-stack AS/RS carousels (expandable to eight) with up to 100,000 storage bins for fulfillment of small, fast-moving SKUs
- Three AS/RS miniloads (expandable to six) for fulfillment of unique surgical kits.
- High-bay shelving and deck rack storage for additional slow-moving and high-cube SKUs.
- Twelve-station order consolidation processing area with simultaneous pick-to-light and put-to-light displays
- Three independent conveyor sortation systems to support the storage and pick areas
- Ten shipping and receiving doors

The architecture of TCS provides a single point of integration between SAP and all of the warehouse automation systems. This gives the company the ability to expand their MHE systems in the future (for example, expanding AS/RS) without needing to modify the SAP interface. Therefore, TCS offers this client significant reductions in future systems validation and regression-testing efforts.

Moreover, the combination of SAP-WM with a modern warehouse control system allows the company to add automation and flexibility to warehouse operations at their main site while retaining consistency with their worldwide implementation of SAP R/3. This ease-of-supportability was a key design goal of the project.

TCS provides all warehouse reporting statistics necessary to manage their primary DC during real-time operations while feeding the expected data into SAP-WM for enterprise reporting. In addition, the open design of the TCS database allows the company's IT to extract supplemental data as required.

**The Results**

There was extensive system integration and certification between the company's SAP support team and Tompkins' TCS implementation staff. In fact, full operational capacity was reached in all systems within four months of the first live order shipped. The medical products company has enjoyed such significant increases in operational efficiency that the peak design year's outbound volume was achieved just two months after the first full-system, live product was shipped.

The client and Tompkins have realized tremendous results from this system. Obviously, a key piece of the success story was the integration of SAP R/3 enterprise to TCS to enable the automation.

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Tompkins Associates transforms supply chains for profitable growth. For more than 35 years, Tompkins has evolved with the marketplace to become the leading provider of growth and business strategy, global supply chain services, distribution operations consulting, information technology implementation, material handling integration, and benchmarking and best practices. The company is known for innovative, practical solutions that improve supply chain performance and produce value-based results. Headquartered in Raleigh, NC, Tompkins has offices throughout North America and in Europe and Asia. For more information, visit [www.tompkinsinc.com](http://www.tompkinsinc.com).