# MTD

## Shelby, Ohio

## About MTD

Founded in 1932 and based in Cleveland, Ohio, MTD is a leading global manufacturer of outdoor power equipment for residential and commercial markets. MTD brands include Cub Cadet, Cub Cadet Commercial, Cub Cadet Yanmar, Troy-Bilt, White Outdoor, Yard-Man, Yard Machines, Bolens, Arnold, GardenWay, MTD Pro and MTD Gold. MTD products can be found in home improvement stores, mass retailers, hardware stores, independent dealer locations, and farm supply stores.

## Challenge

MTD's Parts' Division in Shelby, Ohio, was dealing with inefficiencies due to its growth pattern and operations layout. With operations spread throughout one million square feet of six antiquated World War II military warehouses, MTD needed to centralize its operations.

Receiving, manufacturing, a consumer-direct picking area, service picking, and reserve storage were each in separate buildings, which meant MTD had to transport materials throughout multiple locations. The old warehouses were also dark and dusty with low ceilings and were susceptible to harsh weather conditions.

Additionally, with more than 90,000 stock keeping units (SKUs) in inventory, MTD had no room for growth.

To increase efficiency and prepare for forecasted growth, MTD asked Tompkins Associates (Tompkins) to develop a plan and consolidate operations.

## Solution

Between late 2005 and early 2008, Tompkins completed the following:

### Facility Design and Selection

Tompkins developed a Warehouse Strategic Master Plan (WSMP) and provided a conceptual design of a 450,000 square-foot facility that included high-bay and double-deep storage with four picking areas to accommodate MTD's major business sectors.

### At A Glance

**Challenge:** Consolidate and Maximize Operations

**Solution:** Site Selection and Design, Equipment Justification, and MHE Selection, Simulation and Implementation

During the site selection process, Tompkins created a bid specification document based on MTD's input and coordinated and evaluated requests for information (RFI) as well as requests for proposals (RFPs). Tompkins evaluated alternative sites, organized presentations for MTD from short-listed bidders, and finally recommended the most appropriate bidder and negotiated government incentive packages.

Working with architects, MTD operations, and a Warehouse Management System (WMS) team, Tompkins finalized the detailed design of the site and layouts for each of the business sectors, and then turned its focus to equipment.

### Evaluation and Justification of Equipment

After the processing requirements for each area within the facility were determined, Tompkins sought alternatives to fulfill the requirements. The items examined were:

- Storage and picking equipment
- Mobile equipment for all processing areas
- Alternative layouts that fit equipment requirements
- Staging configurations at the docks
- Work-in-progress methods
- Aisle widths
- Transport methods between processes
- Process control

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Tompkins compared alternatives using net present value (NPV) and ran sensitivity analysis on the viable alternatives. The formula included:

**Capital Investments**

- Facility costs
- Static equipment costs
- Mobile equipment costs

**Operating Expenses**

- Labor
- Rent
- Maintenance
- Supplies

With the evaluation and justification complete, Tompkins selected the proper equipment for MTD and prepared to simulate the layout.

## Simulation of Layout

By creating a simulation of the service and client picking areas, Tompkins made sure the layout was sound before the equipment was ordered. The simulation was needed to:

- Ensure the layout met processing requirements
- Confirm staffing requirements
- Authenticate the processing schedule
- Determine the sensitivity levels
- Validate system throughput capacities
- Determine how to minimize or eliminate potential bottlenecks

> ***"With all operations in one location and processes streamlined, we have caught up with the changing times. We are happy that our customers are happy, and with our processes operating more efficiently, we are able to focus on other areas of our company."***
>
> **Glenn Jackson**
> **General Manager**
> **MTD**

## Material Handling Equipment (MHE)

After the design and simulation, Tompkins released RFPs for the equipment, evaluated the responses, presented recommendations to MTD, and assisted with contract negotiations.

When the vendors and equipment were selected, Tompkins managed the installation, testing and commissioning of the equipment. The new equipment included:

- **Pallet Racking:** single selective, double-deep, decked rack, pallet flow, carton flow rack
- **Conveyor System:** 24-volt motorized drive roller (MDR), line shaft, belt conveyor, gravity conveyor, sorters, scanners, camera tunnel
- **Tompkins Warehouse Control System (TCS):** full-featured commercial solution that provides warehouse and MHE control and functionality options — modified to satisfy the approved design documentation requirements
- **Additional Equipment:** carousels, put/pick-to-light (PTL), rack-supported pick module, guard rail, rack stations, walkovers

## WMS and Order Processing

MTD has four major business sectors that needed to perform more efficiently. The first sector (Service) processes individual service parts orders from dealers, repair shops and online customers. The other three areas process orders for two major home improvement stores and other retailers.

With each of the business sectors having different requirements, each has its own process for the WMS, conveyor routing, and picking systems. The areas were tailored to meet specific needs based on estimated labor, customer requirements, volume, throughput, and SKU base.

Tompkins collaborated with an internal MTD team to finalize the functionality and configuration of the WMS in each area and secure its interfaces with the TCS and other systems. They also established system-directed order processing with the WMS and managed the go-lives for three separate order processing start-ups.

## Operations Support

Throughout the entire process, before and after the go-lives, Tompkins maintained a "designer's-eye-view" to ensure that the integrity of the design remained intact.

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## The Results

The new facility design and MHE implementation helped MTD satisfy internal needs and fulfill customer requirements. More specifically, the engagement had many successful outcomes.

- By utilizing high-bay and double-deep storage, the required **square footage of the facility was reduced by more than half.**
- MTD has **boosted productivity, accuracy, efficiency, fulfillment and throughput** by incorporating automated pick-and-pass tote routing with voice recognition picking technology for its Service line.
- By employing pick-to-light technology with a high-speed sorter, they have **increased case picking productivity and throughput for one of their key home improvement customers**.
- Picked cases are sorted based on their product bar codes, or Global Trade Item Number (GTIN), to processing lanes where they are associated with a WMS created pallet (LTL orders) or shipping labels are applied (parcel orders). The association of case-to-pallet upon divert confirmation **eliminated the need to manually scan individual cases** for customer mandated pallet-level advanced shipping notice (ASN).
- With a real-time warehouse control system (TCS) and a full-featured WMS, visibility and work management have been significantly improved, allowing **faster turn-around time between order placement and shipment**.
- Ultimately, the warehouse consolidation and redesign provides the **resources and capacity for MTD to meet business projections through 2012 with the promise of better customer service, inventory accuracy and reduced operating costs.**

### Project Summary

Tompkins completed:

- Warehouse Strategic Master Plan (WSMP)
- Facility Design and Selection
- Economic Analysis of Equipment
- Simulation of Design
- MHE Procurement
- WMS Design, Configuration and Testing
- Tompkins Warehouse Control System (TCS)
- Three Separate Go-Lives by Business Line
- On Schedule and Under Budget

MTD
For A Growing World.

***Innovative, practical solutions that improve supply chain performance and produce value-based results***

**Tompkins Associates** designs and integrates global end-to-end solutions for companies that embrace supply chain excellence. For more than 30 years, Tompkins has evolved with the marketplace to become the leading provider of global supply chain services, distribution operations consulting, technology implementation, material handling integration, and benchmarking and best practices. The company is headquartered in Raleigh, NC. For more information, visit www.tompkinsinc.com.

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