



# T&S BRASS AND BRONZE WORKS: AN INTEGRATED SOLUTION WITH ROOM TO GROW

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CAROLINA HANDLING

## **T&S BRASS AND BRONZE WORKS: AN INTEGRATED SOLUTION WITH ROOM TO GROW**

“Reliability Built In” is more than a tagline at T&S Brass and Bronze Works. It’s an integral part of a company culture that embraces excellence and innovation.

A leading manufacturer of commercial faucets, fittings and specialty plumbing products for restaurants, hospitals, educational institutions, labs and entertainment venues, T&S introduced the industry’s first pre-rinse unit and other key products like the foot pedal valve.

South Carolina’s Manufacturer of the Year in 2005 and 2015 and a two-time winner of *Industry Week’s* prestigious North American Best Plant award, the 77-year-old company near downtown Travelers Rest, South Carolina, has perfected its manufacturing and assembly processes, and in 2018 began construction on a new 53,000-square-foot building to serve as a materials distribution center.

T&S sells about 10,000 finished faucet models annually and houses more than 14,000 active part numbers, including components and finished goods inventory. Annual growth over the past several years, even during Covid, prompted company officials to begin exploring operational efficiencies to streamline distribution operations to ensure fulfillment kept pace with ever-increasing orders.

## EXPANSION OBJECTIVES

The overarching objective when considering how to outfit the company’s new Building B was to maximize storage capacity by increasing pallet positions with room to grow, according to Bob Clemment, T&S Manager of Production and Inventory Control.

Another goal was to improve pick times.

“We were shipping about 85 percent of all orders on the day the customer requested it or within five days,” Clemment said. “Our goal was to get back to two days, which is where we were before the global supply chain issues of the last few years. We’re making good progress there, and we hope to achieve that goal with the benefit of this building.”

And for a company that in 2023 commemorated achieving five million work hours without an incident resulting in lost time, safety and employee satisfaction are always high on the list of operational objectives.

## A BLANK SLATE

The first phase of the project was a walk-through by Carolina Handling engineers to understand T&S processes and operational flow throughout the facility.

“By automating processes that were very manual, we could free up workers to do more high-valued positions rather than pulling product from one part of the building to the other,” said Carolina Handling Senior Systems Engineer Bob Smith. “But we knew we needed an integrated solution. There was no stand-alone fix.”

An empty 53,000-square-foot warehouse, save a few pallets scattered about, gave engineers a blank slate to design and build an integrated system, blending various automation technologies to address separate needs.

The goal to maximize space was accomplished by using allowable ceiling height to install 28-foot racking with 7 levels in permitted areas, compared with the facility’s previous 5-level racking.



Ceiling height allows 28-foot racking with 7 levels in permitted areas.



New racking provides 198 bays with 2,506 pallet positions.

Racks were installed using the “very narrow aisle” concept for greater space efficiency, with T&S adding VNA wire-guided orderpickers and swing reaches to its lift truck fleet. The new racking system created 198 bays to accommodate 2,506 pallet positions, a nearly 50 percent increase in storage capacity.

The next step was the installation of two pick modules to address non-palletted items such as faucets, hoses and other products. A three-level module was built on the side of the warehouse near manufacturing and assembly to supply material and parts used in those operations. Another three-level pick module was installed on the opposite side of the warehouse near the shipping department, enabling finished product to be pulled more quickly for order fulfillment.

Rather than picking from flow lanes scattered at ground level that required a great deal of walking throughout the large facility, product is now contained within the multilevel pick modules, with powered spiral turns and motor-driven and gravity roller conveyors transporting goods from top to bottom without human touch. The two modules have a total of 27 bays and 768 carton flow lanes.

The final element of the installation—but the first to be built—are three Modula vertical lift modules (VLMs) for storage and retrieval of small parts. Each VLM houses 60 shelves with 11 totes on each shelf, providing more than 1,900 total pick locations. The new VLMs replaced older vertical carousels that had been used at T&S since the 1990s.

“The Modula VLMs have been a great add for us,” Clemment said. “They allow us to be so much more efficient in picking. They’re automated, so one person can pick from the vertical lift modules that used to take us two to three people throughout the day, so we’re better able to keep up.”



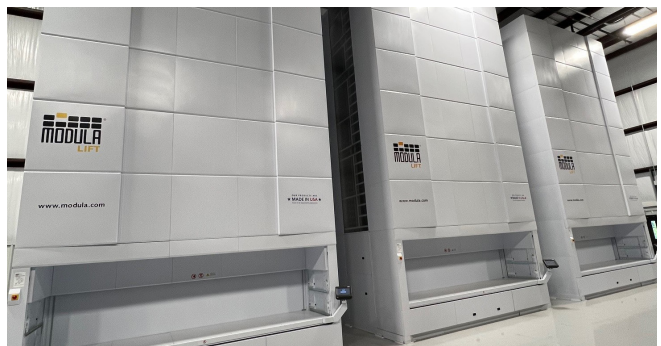
VNA wire-guided orderpickers and swing reaches have been added to the T&S lift truck fleet.



A three-level pick module houses material for manufacturing and assembly. Another on the opposite side of the warehouse houses finished goods.



The installation includes four spiral turns that deliver material to ground level.



VLMs house 60 shelves each, providing more than 1,900 pick locations. [Click here](#) to view a timelapse video of VLM and racking installation.

## ROOM TO GROW

Currently, T&S stocks around 6,000 finished good models in its new racks and pick modules, allowing the company to process about 600 orders per day. And it is shipping 91 percent of orders the same day or within one day of the order being placed by the customer, according to Clemment.

Along with greater efficiency has come improved safety and employee satisfaction.

With the new system, fork trucks are used only in outer aisles to replenish product, while operators pull product inside pick modules that are inaccessible to lift trucks.

“Here at T&S, our employees are very dedicated, but to be perfectly honest, we have an aging workforce,” Clemment said. “As with any organization, we want to keep our employees active here as long as possible. It makes our employees happier because at the end of the day, they’re less fatigued, and we’re just able to process more customer orders in a timely manner.”

### **T&S BRASS AND BRONZE WORKS BY THE NUMBERS:**

#### **RACK**

- + 198 bays
- + 2,506 pallet positions with 4-channel wire mesh decking
- + Wire guidance and VNA orderpickers and swing reaches
- + 28' storage with (7) levels in permitted areas. Remaining area (6) levels or (5) with bottom level mesh cart staging

#### **PICK MODULES**

- + Two (2) modules
- + 27 bays
- + 768 carton flow lanes

#### **CONVEYOR**

- + Four (4) Ryson-powered spiral turns
- + 388' AutoRoll+ motor-driven roller conveyor
- + 104' gravity roller conveyor

#### **VERTICAL LIFT MODULES (3)**

- + Dual tray delivery and WMS integration
- + Unit height of 27' 10" and tray capacity of 1,100 lb
- + More than 1,900 pick locations

## A ONE-STOP SYSTEMS INTEGRATOR

A privately held, family-owned business, T&S was looking for a material handling partner that was local and collaborative.

“We were looking for a systems integration team that was local—somewhere in the Carolinas or Georgia—that could help us build a system to help us grow to the future,” Clemment said. “The Carolina Handling team spent two to three days walking through our facility to gain an understanding of our operations. They worked with our engineering team and brought the knowledge and experience that we were lacking. We couldn’t have asked for a better partnership.”

For more information on integrated solutions from Carolina Handling, contact:

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[Click here](#) to view a video version of this case study.