

# IMPROVING EFFICIENCIES AND MAXIMIZING PRODUCTIVITY WITH

## **HEAVY-DUTY, VERTICAL STORAGE SOLUTIONS**

Strong, durable and safe, heavy-duty storage solutions help companies maximize floor space, increase production efficiencies, reduce material damage, and improve worker safety.



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## IMPROVING EFFICIENCIES AND MAXIMIZING PRODUCTIVITY WITH HEAVY-DUTY, VERTICAL STORAGE SOLUTIONS



**I**n the world of industrial manufacturing, it's not uncommon to walk into a facility that handles heavy raw materials and find a familiar sight—large stacks of coils or bundled tubing stored on the floor, waiting to be retrieved and moved to another location in the plant for processing.

Aside from potential safety issues, this long-held storage practice adversely affects many American manufacturers' profitability due to issues with material damage, machine downtime and inefficient use of labor and space. The solution to reducing losses and increasing productivity often begins with the simple question—how does your current storage system impact manufacturing efficiency?

"It's a fundamental question that sometimes gets overlooked. As a racking manufacturer, we always try to ask our customers what they are trying to accomplish and explore how they process their inventory, right down to the orientation of the raw material when it's initially received," states Tracy Buck, Industrial Storage Sales Engineer at Ross Technology. "The best storage solution is found in the answers to these questions and it's always

fun to see a customer's excitement when they realize their heavy materials can easily be stored vertically and transported with a stacker crane system or narrow-aisle side-loader."

That is to say, many manufacturers didn't choose the floor storage option—they simply weren't aware that a significantly safer, more efficient solution was available for their application in the first place.

### Keeping the "Continuous" in Continuous Improvement

Manufacturing output has been in growth mode in recent years, as seen in the Institute for Supply Management's (ISM's) Purchasing Managers Index (PMI), which for June 2017 reached its highest level since August 2014.

In the metal stamping industry, a study by TechNavio predicts the market will top \$149 billion by 2021, growing at a compound annual growth rate of nearly 5 percent through the forecast period. In the building materials market, a June 2017 Moody's report predicts a positive outlook for the next 12 to 18 months.

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While growth is good, it also intensifies operational pressure and exposes inefficiencies. For example, a company's ability to meet order commitments can quickly become jeopardized if production equipment sits idle while employees are scouring the facility for the correct raw materials.

"As demand increases and production capacities are stretched, more and more companies are placing a priority on keeping the 'continuous' in continuous improvement," Buck explains. "Companies are looking for ways to minimize machine down time, streamline the flow of materials and optimize their just-in-time practices to meet production schedules and remain competitive."

Part of that mission includes safely getting the right material to the right place at the right time—a goal that starts with knowing exactly where and how those products are going to be stored, even before they reach the plant.

Companies that want to thrive are rethinking their manufacturing processes, all the way back to material handling. Older infrastructure is also getting a second look and being more closely evaluated in light of newer products available on the market that offer improved throughput and safety.

"Buying more land and building plants is expensive," says Buck. "Today, maximizing existing floor space and creating an efficient facility is as important as ever to affecting the bottom line, and we want industrial manufacturers to know there are vertical storage and material handling systems capable of helping them achieve these objectives for their heavy-duty applications"

To increase their competitive position, American steel mills, OEMs, toll processors, steel centers, and other industrial companies can benefit greatly by investing in modern storage solutions. Ross Technology manufactures a full range of options for storing all types of metals and equipment including coils, sheets, tubing, pipe, bar stock, tooling, dies and molds.



# 5 Critical Design Elements That Define True Structural Racking

Not all racking is created equal—different manufacturers design racks using various engineering methods and materials. Consider these important engineering factors to reduce the risk of injury and property damage.



**I-BEAMS:** All rack arms, columns, bases and shelf beams should be manufactured using wide flange or standard shape I-beams with a 50 KSI minimum yield.



**ASTM A325 BOLTS:** Columns, beams, bases and rack arms should be connected with heavy hex structural ASTM A325 bolts, which are the same bolts frequently used for bridges and buildings.



**100% LOAD UTILIZATION:** Cantilever racks should be designed by factoring a 100 percent load utilization, meaning a double-sided cantilever rack can be fully loaded on one side while the other remains empty.



**FULLY LOAD-BEARING:** Coil cradles and die rack decks should be engineered to support the coil or die's full load, even if the coil or die is not as deep as the shelf, and therefore not sitting over one or both shelf beams. Coil cradles should also be designed so that the coils always rest on a flat surface, as opposed to the edges of the cradles, which can lead to severe creasing or flattening.



**FULLY WELDED ARMS:** All rack arms should be fully welded around the entire perimeter of the I-beam at the connector plate to increase support and provide protection from uplift loads caused by material handling equipment.

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### Picking the Right Solution

Because rack manufacturers design their systems using various engineering methods and materials, buyers should understand how these differences affect durability, loading capacity, and safety. Material handling is another key consideration, given that standard bridge cranes have limitations when it comes to interfacing with racks designed for certain products, such as coils and dies.

Ross Technology's Dexco Racking Systems are designed specifically for heavy-duty industrial storage applications, and therefore are manufactured with wide flange beams to offer significantly higher load capacities and improved durability compared to roll formed steel. To ensure safety, all racks are engineered using American Institute of Steel Construction's (AISC) standards, which were developed to guide the design of large steel structures such as bridges and buildings.

Dexco industrial storage products include coil racks, tool & die racks, and cantilever rack systems that can handle loads exceeding 80,000 pounds per shelf and 20,000 pounds per individual cantilevered arm. Coil and die racks can be engineered to include an integrated stacker crane, which is mounted on top of the racking to provide a turnkey system. Narrow aisle side-loaders can also be used successfully for vertically storing and retrieving large coils, dies and stacks of sheet metal.

Dexco Racks offer manufacturers and distributors a number of tangible benefits to build on their efforts for continuous improvements, including:

- Reduced machine downtime, because machines aren't waiting for materials to be located
- Improved material flow for the facility
- Greater use of vertical storage space
- Enhanced safety for workers
- Reduced chance of damage to delicate, coated, or dent-prone materials

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### 6 Benefits of Heavy-Duty Storage Solutions

- 1 Improve machine uptime.** A modular, heavy-duty rack system gives each coil, tool or die an easily identifiable location for quick retrieval, so machine operators aren't waiting for raw materials to be located. Transport speed can be enhanced with an automated crane system that includes inventory control software and automated data collection techniques for creating electronic pick lists and tracking material movements.
- 2 Eliminate wasted time.** Marked locations allow employees to quickly store and retrieve inventory.
- 3 Utilize vertical space.** Vertical storage frees up floor space to increase production capacity and revenue potential.
- 4 Enhance safety.** Storing product on engineered racks reduces the risk of materials moving or falling onto employees.
- 5 Reduce chance of damage to materials.** Properly designed shelves eliminate damage from stacking product on top of product, stresses caused by inadequate support (such as the creasing of coils) and accidents involving forklifts and other plant equipment.
- 6 Improve material flow.** Strategic placement of racks near manufacturing equipment can improve flow of materials through the plant.

"The right racking system, custom made for the end user, can make all the difference," Buck says. "When their exact process is taken into account, and a solution is designed specifically around that process, the results are a more organized, efficient and safer for day-to-day operations. This is what we strive to bring to the table on every project, a custom designed solution that helps our customers be more successful."

To companies that want to stand out in the marketplace, enhance revenues, and reduce accidents, Buck says the first step is to conduct a thorough safety inspection. Assess current storage techniques, explore what's being stored where, and talk to facility supervisors about how much time they spend walking around, looking for equipment and products. Only then will manufacturers know where they truly stand in regard to safe and efficient material handling and storage. ■

Optimize your operations and meet all of your industrial-sized storage requirements with the strength and efficiency of Dexco racks. Find your solution at [RossTechnology.com/Dexco](https://RossTechnology.com/Dexco) or call us at **866-248-5088**.

### Resources

1. Institute for Supply Management (2017). June 2017 Manufacturing ISM® Report On Business®: PMI® at 57.8%; New Orders, Production, Backlog of Orders and Employment Growing Supplier Deliveries Slowing Inventories Contracting Prices Increasing at Slower Rate. [<https://www.instituteforsupplymanagement.org/about/MediaRoom/newsreleasedetail.cfm?ItemNumber=30842&SSO=1>]
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3. Moody's (June 2017). Moody's Corporation Reports Results for Second Quarter 2017. [<http://ir.moody.com/news-and-financials/press-releases/press-release-details/2017/Moodys-Corporation-Reports-Results-for-Second-Quarter-2017/default.aspx>]