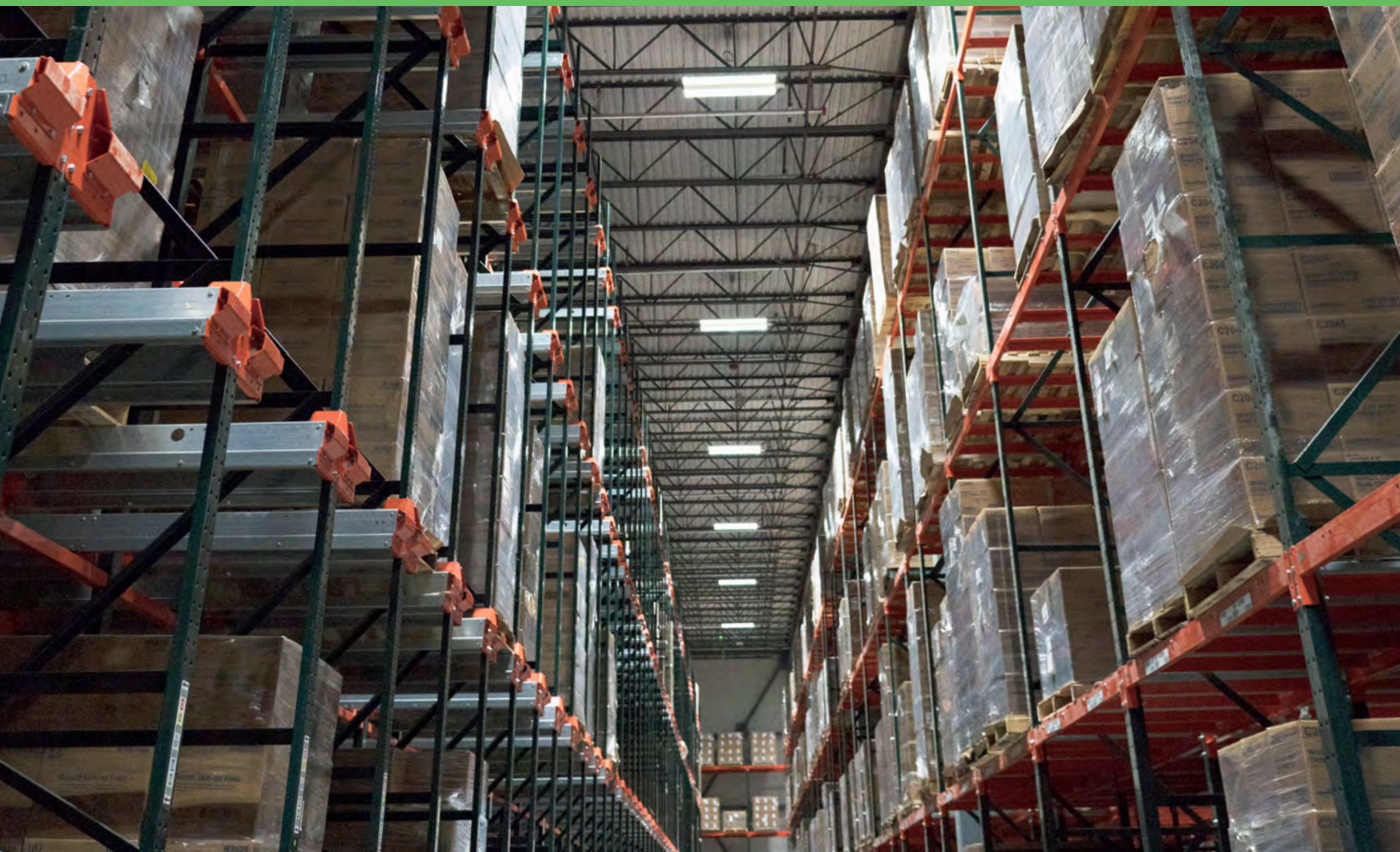




# COLD STORAGE RACK PLANNING

HOW TO CHOOSE THE RIGHT PALLET RACKING FOR COLD STORAGE





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# How to Choose the Right PALLET RACKING FOR YOUR COLD STORAGE NEEDS

In today's world, there are several options when it comes to improving efficiencies in cold storage. Some are tried and true, and others, like automation, are quickly gaining traction.

In fact, a report from *Research and Markets* predicts the warehouse automation market will soar in the coming years, to heights of \$33.5 billion by 2027. A significant increase from \$17.32 billion in 2022.



With this growing momentum, it's easy to start mentally gravitating toward a full-blown automated storage and retrieval system. However, it's important to look at automated options with a critical eye.

Finding the right solution or solutions for your warehouse today means evaluating the space you have and planning a solution that will work within it.

Let's explore the options to help you choose the right pallet racking for your cold storage needs.

## Determining Your Path Forward

Cold Storage Racking Systems in cold storage facilities face harsher conditions than those found in other warehouses or distribution centers. With higher costs to keep temperatures in range, high-density pallet storage is the name of the game.

Unfortunately, this compact solution presents a few issues.

"High density rack can help with FIFO (first in, first out) handling common in freezers and cold storage, but also LIFO (last in, first out) scenario handling situations," says Beth Randrup, project manager for Steel King Industries. "Though what I've noticed lately is that customers are now changing out their old 5-, 6-, 7-pallets-deep layouts in favor of storing two and three pallets deep to help eliminate on rack damage."

As some look to reconfigure their layouts, now is a great time to evaluate what system would work best going forward.

Steel King offers five types of cold storage pallet racking: drive-in, pushback, pallet flow, automated storage and retrieval systems (ASRS) and traditional selective.

The type you choose will be based on throughput needs, selectivity needs, workflow, and potential expansion needs.

### Drive-In Racking Systems

Often the go-to choice for cooler and freezer facilities, drive-in racking systems can accommodate up to 75% more pallets than selective racking. High-density storage is provided by allowing pallets to be stored in multiple positions deeps.

Pallets are loaded onto horizontal rails with specific pallet rack spacing for forklift accessibility. Drivers then remove the pallets from the same entry point at which they were loaded.

Likewise, drive-through racking systems allow high-density storage, however they are designed for loading on one side, and unloading on the other. This also supports first-in, first-out freshness requirements.



Pushback Racking can hold up to 90% more storage than a selective system.



Drive-In Racking systems can accommodate up to 75% more pallets than selective racking.





Pushback Racking

## Pushback Racking Systems

Unlike other rack systems, each level is independently accessible.

Pushback racking systems accommodate multiple-depth pallet storage, commonly two to five deep. In these systems, access to the pallets is from one side of the racking system, which eliminates an aisle creating denser storage. Pushback racking can hold up to 90% more storage than a selective system..



Pallet Flow (Gravity) Flow

## Pallet-Flow Racking Systems

Like pushback systems, pallet-flow racking systems take advantage of gravity to ensure that pallets are easily accessible from the front of the racking.

In these high-density systems, pallets are loaded on one side and unloaded on the other. Thus, first-in, first-out handling is assured, supporting the freshness requirements of food handling.

SK3400 is a gravity flow rack storage system that allows users to increase product storage density by nearly 90% over selective racks.

## ASRS Racking

This system allows for deep and tall designs that maximize product density and minimize a facility's footprint.

This high-density storage not only reduces the area to cool, it also creates an environment that minimizes heat loss.



Selective Racking

## Selective Racking

The most common type of pallet storage allows easy and immediate access to any pallet as storage is only one pallet deep. Selective racking allows higher density than floor storage, but not as much as those outlined above. However, they can accommodate different pallet sizes.

## Narrowing Down the Field

When evaluating your options, a lot of this will come down to preference.

“With drive-in versus pushback racking, it’s what you prefer,” says Randrup. “It provides the same density as you can get with drive-in racking. You gain a little bit more space with drive-in racking and only have single wide base. So, you could have a run of rack with 20 bays in it, but then you’re going to lose those three or four inches per frame position with drive-in rack. With pushback rack now you can have eight-foot base and load two pallets in there without losing the space of an upright.”

As you look to your current facility, your footprint is already made. You know exactly how much space you must work with, and you know what type of adjustments can be made with the least amount of disruption.

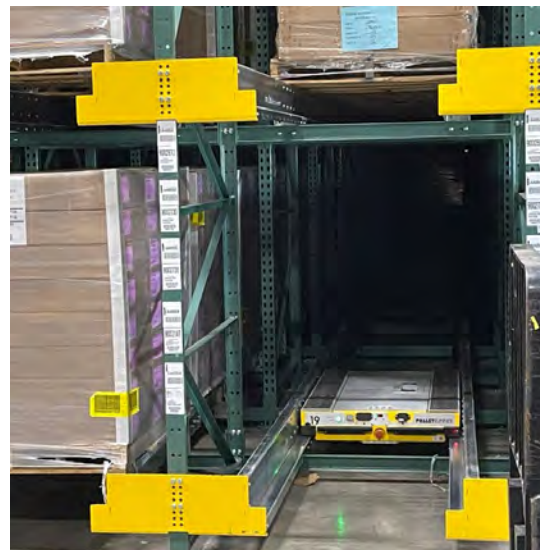
“It’s about squeezing every inch out of your facility,” says John Clark, director of marketing at Steel King Industries. “That could be the difference between having to expand – and having that huge cost – and increasing your facility density by 10 to 20 percent, that might be all you need to do.”

Maximizing the space you have requires diligent planning – and maybe a bit of automation.

## Bridging the Gap

Sometimes it feels like there’s a world between a full, lights-out ASRS system and a more traditional drive-in racking system. Luckily, there are solutions that help bridge that gap and make automation more attainable for those in the cold storage space.

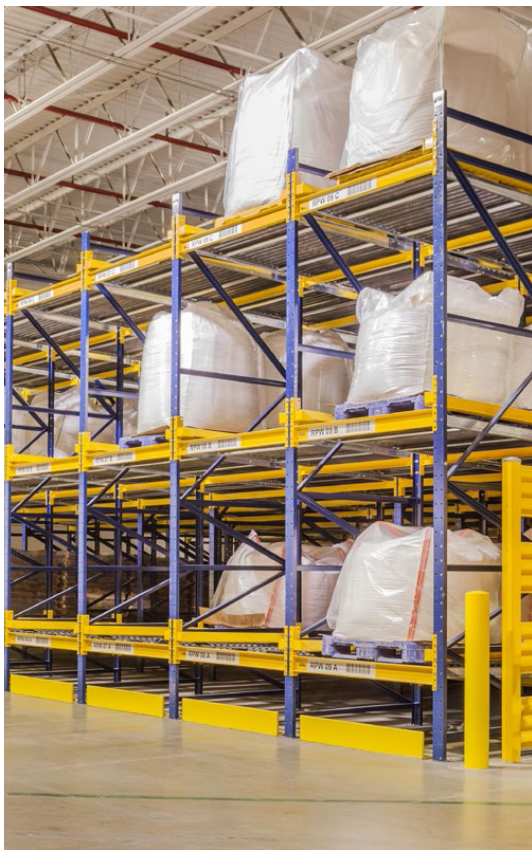
Steel King recently launched a new turnkey semiautomated pallet shuttle solution offering, that allows more facilities to embrace autonomous options and dense storage.



***“It’s about squeezing every inch out of your facility, that could be the difference between having to expand – and having that huge cost – and increasing your facility density by 10 to 20 percent.”***

***- John Clark***

*Director of Marketing  
Steel King Industries*



In this solution, pallets are placed onto a pallet shuttle inside the racking structure and the shuttle transports the load into deep lane, dense storage. Once the load is positioned the cart returns to the front of the system to receive the next pallet. The shuttle does the deep lane movement within the rack while the lift truck operator travels only between load source and lane entry. This maximizes productivity and minimizes travel distance both for loading and unloading of product.

It is a turnkey solution for companies looking to streamline their storage processes while also not taking the time to shut down for expansion. "For companies in existing buildings without the ceiling height for ASRS, this type of solution is something that can offer the benefits of dense semi-automated storage without the higher costs of automated ASRS," says Clark. "The concept of a pallet shuttle isn't new, but it's becoming more and more attractive in these types of environments where space or the ROI for full-on automation isn't there. It's a great option where you don't have to change your building footprint or raise the roof of your facility, but still increase storage density and efficiency."

As forklift drivers no longer need to enter and leave a bay to place products, the chance of damage to racking and themselves significantly decreased. This opens up the opportunity for companies to work smarter with the labor force they have, as well as reduce the need for costly repairs or replacement to racks after sustained contact from errant forklifts.

Additionally, the pallet shuttle approach is a scalable solution, allowing companies to customize the solution to match its needs and build on as needed. The investment is strategic and allows owners to explore the benefits of this semiautomated option within the space they have.

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## Trusted Support as You Navigate Changes

The team at Steel King is backed by decades of experience assisting companies in the cold storage space increase efficiency and productivity, while also keeping working safe.

Randrup, for example, has, helped countless customers evolve and create warehouse spaces that meet growing demand.

“Most people have been using certain systems for a long time,” says Randrup. “I help them rethink how they can maximize the pallet positions in their facility. If a company can maintain the existing building footprint, but increase storage capacity 10, 20, or 30 percent more by looking at their operation differently, that’s a win.”

That’s the value of a partnership with Steel King - you have the vast wealth of their knowledge to find the solution that works best for your space.

Looking to make changes to the layout of your own facility or take that first step into the brave new autonomous world?  
**Let’s connect and find a custom solution that works for you.**







# DESIGNED TO PERFORM PRODUCTS BUILT TO LAST

For over 50 years, Steel King Industries, Inc. has produced high-caliber material handling racking, storage, and safety systems that improve, fortify, and protect company's supply chains nationwide. With unparalleled standards of safety and quality, we manufacture storage solutions ranging from the industry's top containers, work platforms, and rack systems, to highly engineered distribution facility systems that are foundational for an automated supply chain. Steel King's reliability, strength, and support have earned recognition and loyalty as one of the top rack manufacturers in North America, as we proudly contribute vitality, efficiency, and value to supply chains worldwide.

## Support for Support

At Steel King, we stake our reputation on supporting people—not just inventory. We're here to help you specify the high-density solutions to meet the needs of your operation, space, and budget.

Scan to learn about  
our complete solutions  
and why our products  
are BUILT TO LAST.



SCAN ME

## Rack and Systems

The ultimate in design and execution, customized for your space and requirements. Built tough, forklift-friendly, and ready to store any inventory.

- > Pallet Racks
- > Cantilever Racks
- > Drive-In / Drive-Through Racks
- > Flow Rack / Pushback Racks
- > Pick Module Racks
- > Specialty Racks
- > Portable Racks
- > Custom Shipping Racks
- > Support Structures / Work Platforms

## Safety Products

Steel King's safety products extend the life of your facility and have been setting industry standards in safety, protecting your people, product, and plant.

- > Guard Rails
- > Safety Gates
- > Pallet Load Stops and Supports
- > Lift-Out Rails
- > Rub Rails

## Containers

Steel King manufactures a full line of industrial storage containers for heavy-duty stackable storage, scrap handling, line assembly dispensary, parts distribution, and other uses. We offer essential, industry-standard designs as well as fully-custom containers suited to your storage requirements.

- > Transportable Containers
- > Bulk Containers
- > Collapsible Containers
- > Work in Progress (WIP) Containers
- > Steel Pallets



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